

Rulers of Opinion

Women at the Royal Institution of Great Britain, 1799-1812

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I, Harriet Olivia Lloyd, confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

Abstract

This thesis examines the role of women at the Royal Institution of Great Britain in its first decade and contributes to the field by writing more women into the history of science. Using the method of prosopography, 844 women have been identified as subscribers to the Royal Institution from its founding on 7 March 1799, until 10 April 1812, the date of the last lecture given by the chemist Humphry Davy (1778-1829). Evidence suggests that around half of Davy's audience at the Royal Institution were women from the upper and middle classes. This female audience was gathered by the Royal Institution's distinguished patronesses, who included Mary Mee, Viscountess Palmerston (1752-1805) and the chemist Elizabeth Anne, Lady Hippisley (1762/3-1843).

A further original contribution of this thesis is to explain why women subscribed to the Royal Institution from the audience perspective. First, Linda Colley's concept of the "service élite" is used to explain why an institution that aimed to apply science to the "common purposes of life" appealed to fashionable women like the distinguished patronesses. These women were "rulers of opinion," women who could influence their peers and transform the image of a degenerate ruling class to that of an élite that served the nation. Second, Adeline Johns-Putra's argument that the poet and audience member Eleanor Anne Porden (1795-1825) saw Davy as a "knight of science" is expanded upon to explain Davy's success at the Royal Institution. In the cult of heroism of the Napoleonic era, Davy and his female audience co-constructed a chivalrous chemistry in the lecture theatre. Chivalry meant deference to rank and sex. Thus Davy and his female audience disassociated chemistry from its late eighteenth-century connections with political radicalism.

Impact statement

This thesis offers one more contribution towards a global, long-term trend in academic historical research that seeks to include women's stories. At the time of writing, female biographies made up 14% of entries in the Oxford Dictionary of National Biography. Here, I have challenged the gender imbalance in the historiography of the early years of the Royal Institution of Great Britain. In doing so, I have fleshed-out the transformation of the public image of chemistry around the turn of the eighteenth century, a transformation noted by Jan Golinski in his influential text, *Science as Public Culture* (1992).

The research presented in this thesis has reached a global, digital audience outside of academia. I shared my main findings and methods with 1,816 students enrolled on a free Massive Open Online Course (MOOC), "Humphry Davy: Laughing Gas, Literature and the Lamp," hosted by Future Learn and the University of Lancaster. The outcome was that many of the students reflected on their previous conceptions of scientific audiences in the early-nineteenth century as being predominantly male.

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Chapter 1 Introduction

The early years of the Royal Institution of Great Britain have long provided fertile ground for scholarship.¹ It has become somewhat of a classic case study of “public science,” and its early years are most often associated with the work of Humphry Davy (1778-1829), who was engaged as Assistant Lecturer, Lecturer and then Professor of Chemistry from 16 February 1801 until 10 April 1812.² Jane Marcet (née Haldimand, 1769-1858) is perhaps the most famous woman to have attended Davy’s lectures, and she has received attention for popularising science among an upper class female readership.³

However, the women who were involved at the Royal Institution in its early years *as a collective group* have never been the focus of these scholarly examinations, this despite evidence that suggests the audience was at times mostly female. After attending one of Davy’s lectures in 1810, Louis Simond observed, “more than one half of the audience is female.”⁴ The *Liverpool Mercury* newspaper reported that “three to four hundred Ladies of the highest rank and respectability” had “constantly” audited Davy’s geology course in the lecture season of 1811.⁵

¹ Richard D. Altick, *The Shows of London* (Cambridge, Massachusetts and London, England: The Belknap Press of Harvard University Press, 1978); Henry Bence Jones, *The Royal Institution. Its Founder and its First Professors* (London, 1871); Morris Berman, *Social Change and Scientific Organization. The Royal Institution, 1799-1844* (London: Heinemann Educational Books Ltd, 1978); Morris Berman, “The Early Years of the Royal Institution 1799-1810: A Re-Evaluation,” *Science Studies* 2 (1972): 205-240; Gwendy Caroe, *The Royal Institution: An Informal History* (London: John Murray Publishers Ltd, 1985); Frank A. J. L. James (ed.), *The Common Purposes of Life: Science and Society at the Royal Institution of Great Britain* (Aldershot: Ashgate, 2002); Jon Klancher, *Transfiguring the Arts and Sciences: Knowledge and Cultural Institutions in the Romantic Age* (Cambridge: Cambridge University Press, 2013).

² Jan Golinski, *Science as Public Culture: Chemistry and Enlightenment in Britain, 1760-1820* (Cambridge: Cambridge University Press, 1999 (1992)); Jan Golinski, “Humphry Davy’s Sexual Chemistry,” *Configurations* 7 (1999): 15-41; Jan Golinski, *The Experimental Self: Humphry Davy and the Making of a Man of Science* (Chicago and London: University of Chicago Press, 2016); Sophie Forgan (ed.), *Science and the Sons of Genius: Studies on Humphry Davy* (London: Science Reviews Ltd., 1980); David Knight, *Humphry Davy: Science and Power* (Cambridge: Cambridge University Press, 2006 (1992)).

³ Saba Bahar, “Jane Marcet and the Limits to Public Science,” *The British Journal for the History of Science* 34 (2001): 29-49; Sally Horrocks, *Audiences for Chemistry in Regency Britain: Mrs Marcet’s Conversations on Chemistry* (University of Cambridge undergraduate dissertation, 1987) and Bette Polkinghorn, *Jane Marcet: An Uncommon Woman*, (Aldermaston: Forestwood Publications, 1993).

⁴ Louis Simond, 24 January 1810, *Journal of a tour and residence in Great Britain*, in two volumes (Edinburgh, 1817; 2nd ed.), on 1:43.

⁵ Anonymous, “Advertisement,” *Liverpool Mercury*, 9 August 1811, 47c.

Benjamin Silliman observed of the audience at William Allen's (1770-1843) lecture on "the general properties of matter" in November 1805, "about half were female and most of these were young ladies."⁶ In the spring of 1802, Francis Horner reported "a mixed and large assembly of both sexes" of around 300 plus at Davy's lecture on "animal substances."⁷ As is to be expected, the audience composition at the Royal Institution fluctuated: Anna Letitia Barbauld (1743-1825) estimated that one third of the "fashionable and attentive" audience that attended Thomas Garnett's (1766-1802) first lecture season in 1800 was female.⁸ Indeed, it seems to have become expected that scientific audiences would include women. Eleanor Anne Porden⁹ ridiculed one lecturer, George John Singer (1786-1817),¹⁰ for launching "out into a panegyric on the ladies of half an hour long," despite there only being five women present (of whom Porden was one).¹¹

There were two main routes for a woman to attend the Royal Institution lectures. A woman was eligible to attend as the wife or unmarried daughter of a Proprietor (Proprietors were those who had bought a share in the Royal Institution), although most of these "plus-one" subscriptions were not recorded.¹² If they were not the wife or daughter of a Proprietor, women could apply to one of the Institution's distinguished patronesses. The distinguished patronesses play a central role in this story, as it was they who gathered the Royal Institution's first female audiences. The term "distinguished patroness" was not an official title given by the Managers.

⁶ Benjamin Silliman, 13 November 1805, *A Journal of Travels in England, Holland, and Scotland, and of Two Passages over the Atlantic in the Years 1805 and 1806* in two volumes (Newhaven, 1812; 2nd ed.), on 2:211.

⁷ Francis Horner, 31 March 1802, quoted in Leonard Horner (ed.) *Memoirs of Francis Horner with Selections from his Correspondence* (Edinburgh, 1849), on 109.

⁸ Anna Letitia Barbauld, quoted in Grace A. Ellis, *A Memoir of Mrs Anna Lætitia Barbauld with many of her letters*, in two volumes (Boston, 1874), on 1:226.

⁹ The papers of Eleanor Anne Porden form part of the Papers of the Gell Family of Hopton, and are held at the Derbyshire Record Office (hereafter D311).

¹⁰ Porden did not mention where Singer's lectures in 1812 took place, but an earlier offer of Singer's to give a gratuitous course of lectures on electricity was declined by the Royal Institution Managers, see RI MM, 20 November 1809, 4:492. In 1813, Singer gave a lecture course on electricity and electrochemical science at the "Scientific Institution" on Princes Street, near Cavendish Square. See William Nicholson's *Journal of Natural Philosophy, Chemistry and the Arts* 34 (January 1813), 79.

¹¹ Eleanor Anne Porden, letter to unknown recipient, 18 July 1812, D311/25/1/6.

¹² The different subscriber categories at the Royal Institution, including Proprietor, Annual Subscriber and Life Subscriber, are discussed in detail in Chapter 2, "Methodology," 57.

It was coined by Rudolph Ackermann in his *Microcosm of London*, an illustrated account of sites of interest in London, published between 1808 and 1810:

The managers have requested a number of ladies of the highest respectability, to hold books for the purpose of recommending ladies who wish to subscribe to the lectures; and no lady can be admitted but on the recommendation of one of these distinguished patronesses.¹³

The minutes of Managers' Meetings (hereafter the Managers' Minutes)¹⁴ were relatively silent on the role the distinguished patronesses played at the Royal Institution, as they were silent on other issues that could potentially be seen to be socially disruptive. Indeed, women's subscriptions to the Royal Institution between 1802 and 1809 were documented not in the Managers' Minutes, as male subscriptions were, but in books held by the distinguished patronesses, and none of these books have been found.¹⁵ The piecemeal nature of the archival evidence of female subscriptions in part explains the lack of scholarly attention given to women's involvement at the Royal Institution.

The appointment of distinguished patronesses was the pioneering step of the Royal Institution with regards to female attendance at scientific lectures. There are some examples of women attending scientific lectures in Britain before then, notably at Glasgow's Anderson's Institution (founded in 1796), from where the practice of admitting women was copied. The first professor of Anderson's Institution, Thomas Garnett, was also the first professor of the Royal Institution. The influence of Anderson's Institution on the Royal Institution is discussed in Chapter 4, "A very incongruous union: fashion and chemistry."

Male audience members of the Royal Institution could be Fellows of the Royal Society of London, but they also joined smaller, less formal and more intimate societies. Gwen Averley has argued that in England between 1780 and 1850 "the

¹³ Rudolph Ackermann, *The Microcosm of London* in three volumes (London: 1808-1810): 3: 35.

¹⁴ The manuscript minutes of the Managers' meetings are kept in the Royal Institution of Great Britain archives, RI MS AD/02/B/02/A. The minutes of the nineteenth century meetings were published in facsimile as *The archives of the Royal Institution of Great Britain in facsimile: Minutes of the Managers' Meetings, 1799-1903*, fifteen volumes in seven (London: Scolar Press, 1971-1976). They will be cited as RI MM followed by date of meeting, volume, and page number.

¹⁵ This despite my search of the personal archives of the women concerned.

vast majority of scientific societies were small, private, ephemeral groups.”¹⁶ Rather than acting as a forum for presenting papers, these smaller societies tended to focus on conversation. Samuel Boddington (1766-1843), the wealthy merchant and owner of estates in the West Indies, whose daughter subscribed to the Royal Institution, participated in London’s all-male clubs, meeting the chemist Alexander Marcet (1770-1822) at the King of Clubs.¹⁷ Boddington also refers to his attendance of the “Royal Institution Club,” about which little is known, and of which Davy and Earl Spencer (1758-1834) were also members.¹⁸ Most of the societies in Averley’s survey were all-male spaces. The short-lived Lambeth Chemical Society (1809-1812),¹⁹ a society that emphasised practical over theoretical chemistry, was an exception. Women were invited by male members of the society to attend specific evenings that had been pre-selected by the Lambeth Chemical Society’s committee.²⁰

A mostly female audience for science attended the prize-giving ceremonies of the Society for the Encouragement of Arts, Commerce, and Manufactures in Great Britain (Society of Arts), in London. The premiums offered by the Society of Arts (founded in 1754) were awarded to women as well as men.²¹ Elizabeth Ilive (c. 1770-1822), who kept up a regular subscription to the Royal Institution, was awarded a silver medal in 1796 by the Society of Arts for improving a mechanism that lifted heavy weights.²² From 1787, these premiums were presented in prize-giving ceremonies that became a public spectacle. Richard Phillips’ engraving *The Society of Arts distributing its premiums* (1804) suggests that these ceremonies attracted a mostly female audience contemporaneous to that of the Royal

¹⁶ Gwen Averley, “The Social Chemists’: English Chemical Societies in the Eighteenth and Early Nineteenth Century,” *Ambix* 33 (1986): 99-128, on 99.

¹⁷ Journal of Samuel Boddington 1815-1843, 3 February 1816, part of the Boddington Family Collection at the London Metropolitan Archives, CLC/426/MS10823/005C.

¹⁸ Journal of Samuel Boddington 1815-1843, 1 March 1816, 13 March 1818 and 12 March 1819.

¹⁹ Averley, *The Social Chemists*, 120.

²⁰ Averley, *The Social Chemists*, 118.

²¹ Linda Colley, *Britons: Forging the Nation 1707-1837* (New Haven and London: Yale University Press, 2005 (1992)), on 94.

²² Alison McCann, “A private laboratory at Petworth House, Sussex, in the late eighteenth century,” *Annals of Science* 40 (1983): 635-655, on 639.

Institution.²³ Matthew Paskins has charted how the prize-giving ceremonies became more fashionable events when they moved to the Opera House, Drury Lane Theatre and the Lyceum, from the Society's rooms at the Adelphi.²⁴ Nevertheless, scientific lectures at England's two universities and meetings at the Royal Society of London remained closed to women.

This thesis aims to address the gender imbalance in the literature by focussing on the women who attended the Royal Institution from its foundation on 7 March 1799 until 10 April 1812, the date of Humphry Davy's last lecture. In doing so, I have asked three research questions: Who were these women? Why did they become involved with the Royal Institution? What were the consequences of having an audience that was half or even mostly female at the new scientific institution? Before beginning a review of the literature, the answers to those research questions are summarised below.

At least 844 women subscribed to the Royal Institution over the period covered in this thesis (see Appendix). The efforts of the distinguished patronesses played a key role in bringing these women to the Royal Institution when it opened. Mary Mee, Viscountess Palmerston and Margaret Bernard (d. 1813), were the most active of the distinguished patronesses in recommending other women to the Royal Institution in its first few years. Through these recommendations, the distinguished patronesses endeavoured to change the cultural image of the female upper classes to better match the transformation of that of their male counterparts: they fashioned themselves into what Linda Colley has called a service élite.²⁵ The service élite was characterised by "a far more self-conscious rhetoric and appearance of service to the public and to the nation."²⁶ Viscountess Palmerston and Margaret Bernard became involved with the Royal Institution as they dedicated themselves to works of "scientific philanthropy"²⁷ and encouraged other upper-class women to

²³ Matthew Paskins, *Sentimental Industry: the Society of Arts and the Encouragement of Public Useful Knowledge, 1754-1848* (University College London PhD thesis, 2014) 65-66.

²⁴ Paskins, *Sentimental Industry*, 66.

²⁵ Colley, *Britons*, 192.

²⁶ Colley, *Britons*, 192.

²⁷ Scientific philanthropy is a term coined by Morris Berman. See Berman, *Social Change and Scientific Organization*, 8.

follow suit. The appointment of these distinguished patronesses meant that the pre-existing female networks of fashionable London could be used, resulting in women attending lectures in their hundreds.

The word most often used to describe the audience at the Royal Institution was “fashionable.” In answering why Guillaume-François Rouelle’s (1703-1770) chemistry lectures at the Jardin du Roy between 1742-1768 were so popular, Lissa Roberts observed “to respond that his course was popular because science was more generally fashionable in the eighteenth century is only to beg the question.”²⁸ Fashion is not a self-explanatory reason for popularity. However, fashion in the context of the Royal Institution lectures can be linked to the influential power of women, including the distinguished patronesses. As Diana Donald has argued, late-eighteenth century moralists feared fashion as a type of female power, capable of “socially disruptive effects.”²⁹ Women like Viscountess Palmerston and Margaret Bernard had the power to lead by example. So successful were they at doing this that soon the sheer number of women attending lectures at the Royal Institution was causing alarm for men like the ultra Whig, Henry Brougham (1778-1868), who worried that science was in thrall to female influence.³⁰

And to an extent it was. At the Royal Institution, chemistry was shorn of the radical reputation it had gained in the turmoil of the 1790s in the aftermath of the French Revolution. Instead, chemistry became another tool in the service of the élite. Jan Golinski has attributed this transformation to the career of Humphry Davy, analysing the language Davy used in his lectures as evidence.³¹ However, Golinski did not look at how the audience facilitated this transformation beyond an acknowledgement that the audience in London was different to the radical circles Davy had been part of in Bristol. Davy’s tenure at the Royal Institution coincided

²⁸ Lissa Roberts, “Chemistry on Stage: G. F. Rouelle and the Theatricality of Eighteenth Century Chemistry” in Bernadette Bensaude-Vincent and Christine Blondel (eds.) *Science and Spectacle in the European Enlightenment* (Aldershot: Ashgate, 2008): 129-139, on 129.

²⁹ Diana Donald, *The Age of Caricature: Satirical Prints in the Reign of George III* (New Haven and London: Yale University Press, 1996), on 85-86.

³⁰ Henry Brougham, review of Thomas Young’s 1802 Bakerian Lecture “On the Theory of light and Colours,” *Edinburgh Review* 1 (January 1803): 450-456.

³¹ Golinski, *Science as Public Culture*, 188.

with the war against Napoleonic France (1803-1815); a war in which the desire women felt to prove themselves patriots reached heights hitherto unseen.³² I show that Davy was responding to a revival of chivalry among his female audience, a revival that was a conscious echo of Edmund Burke's (1729/30-1797) famous declaration that the French Revolution heralded the end of the age of chivalry.

A further consequence of having a prominent female audience at the Royal Institution can be found in the chemical turn of Bluestocking satire in the first decade of the nineteenth century. As Sylvia Harcstark Myers has argued, feelings towards female intellectuals were bound up in the figure of the Bluestocking.³³ In the eighteenth century the Bluestocking had been famed for her literary learning, but following the success of Davy's lectures among the female upper classes, chemistry featured prominently in Bluestocking satire. The existence of such satire is suggestive of anxiety brought about by the scale of female attendance at the Royal Institution.

1.1 Morris Berman's social history of the Royal Institution

Perhaps the most influential study of the early Royal Institution is Morris Berman's *Social Change and Scientific Organization* (1978). According to Berman, the Royal Institution was primarily directed towards agricultural interests in its first decade, as it served the small group of male "improving landlords" of the landed classes who managed it. In particular, Berman made much of the "interlocking directorate" of the Royal Institution on Albemarle Street and the neighbouring Board of Agriculture on Sackville Street.³⁴ From Berman's perspective, "the Royal Institution was the Board's laboratory and Davy its salaried employee."³⁵

In 1805, the Managers of the Royal Institution received notice of a legacy of 40 guineas bequeathed by an Edward Goate, so that the Institution might award

³² Colley, *Britons*, 237-281.

³³ Sylvia Harcstark Myers, *The Bluestocking Circle. Women, Friendship, and the Life of the Mind in Eighteenth-Century England* (Oxford: Clarendon Press, 1990), on 303.

³⁴ Berman, *Social Change and Scientific Organization*, 41.

³⁵ Berman, *Social Change and Scientific Organization*, 47.

premiums for agricultural improvements.³⁶ Goate mistakenly referred to the Institution as the “Society of Husbandry in Albemarle Street,” and, as the Royal Institution did not award premiums, the Managers passed the legacy on to the Board of Agriculture on nearby Sackville Street.³⁷ For Morris Berman, this episode between Goate, the Managers and the Board of Agriculture epitomised the “public image” of the Royal Institution.³⁸ While acknowledging “Society of Husbandry” was not the only story that could be told about the Royal Institution, Berman maintained it was the most important one.³⁹

Berman asserted that the Royal Institution “essentially emerged out of the industrial and agricultural changes in late-eighteenth century England.”⁴⁰ However, at the end of the twentieth century, Amanda Vickery noted a tendency in the historiography for the Industrial Revolution to be used as a “*deus ex machina*” to account for all social developments of the late eighteenth to mid-nineteenth century, and Berman’s study is of that mould.⁴¹ The hegemony of the Board of Agriculture over the Royal Institution’s development as described by Berman has also been contested. Frank James has used the attendance records at the Royal Institution Managers’ Meetings to demonstrate a “lack of engagement” from those among the landed classes who were elected as Managers.⁴²

James also pointed to the lack of agricultural content in Thomas Garnett’s first lecture courses,⁴³ a lack that is also reflected in newspaper reports of Davy’s lectures, Davy’s published *A Discourse, Introductory to a Course of Lectures on Chemistry* (1802)⁴⁴ and the Royal Institution’s *Prospectus*,⁴⁵ written by two of

³⁶ RI MM, 18 March 1805, 4:44.

³⁷ RI MM, 1 April 1805, 4:52.

³⁸ Berman, *Social Change and Scientific Organization*, 45.

³⁹ Berman, *Social Change and Scientific Organization*, 46.

⁴⁰ Berman, *Social Change and Scientific Organization*, 41.

⁴¹ Amanda Vickery, “Golden age to separate spheres? A Review of the Categories and Chronology of English Women’s History,” *The Historical Journal* 36 (1993): 383-414, on 397.

⁴² Frank A. J. L. James, “‘Agricultural Chymistry is at present in its infancy’: The Board of Agriculture, The Royal Institution, and Humphry Davy,” *Ambix* 62 (2015): 363-385, on 370.

⁴³ James, “‘Agricultural Chymistry is at present in its infancy,’” 370.

⁴⁴ Humphry Davy, *A Discourse, Introductory to a Course of Lectures on Chemistry delivered in the theatre of the Royal Institution, on the 21st of January, 1802* (London, 1802).

Berman's improving Landlords, Sir Richard Joseph Sullivan (or Sullivan, 1752-1806) and Sir John Coxe Hippisley (1745/6-1825). While the *Prospectus* does promote the application of science to agriculture, it is given no more importance than the application of science to domestic and manufacturing practices.⁴⁶ Indeed, the *Prospectus* concludes not with issues "immediately relevant to the landowning classes,"⁴⁷ but with the promise "above all, we will find our contemplations urged to the phenomena of *light* and *heat*,"⁴⁸ a focus likely promoted by Benjamin Thompson, Count Rumford (1753-1814), one of the key players in the founding of the Royal Institution.

Sophie Forgan made the historiographical point that studies of the Royal Institution have been periodised according to the famous men of science who worked there, exemplified in Henry Bence Jones's (1813-1873) *The Royal Institution* (1871), that singled out in particular Humphry Davy and Michael Faraday (1791-1867).⁴⁹ Morris Berman's work is a foil to such histories: he argued that the concept of science at the Royal Institution was not that of Davy's, or later Michael Faraday's, but that of the male improving landlords whom Berman argued had control over the Institution.⁵⁰ In contrast to Bence Jones, who viewed the first decade of the Royal Institution through the careers of Count Rumford and then Davy, Berman downplayed the agency of both, insisting that Rumford's role in the foundation of the Royal Institution "seems almost arbitrary."⁵¹ Berman's was a social history of the Royal Institution informed by Marxism. He gave power not to Davy or Rumford but to a collective group at the Royal Institution, the improving landlords, and even used the Institution as a kind of microcosm of English society with regards to the

⁴⁵ *The Prospectus, Charter, Ordinances and Bye-Laws, of the Royal Institution of Great Britain. Together with Lists of the Proprietors and Subscribers: and an Appendix* (London, 1800), Royal Institution Archives, RI/MS/AD/02/A/01/A, box 261 (hereafter *Prospectus of the Royal Institution*).

⁴⁶ *Prospectus of the Royal Institution*, 11-15.

⁴⁷ Berman, *Social Change and Scientific Organization*, 32.

⁴⁸ *Prospectus of the Royal Institution*, 15.

⁴⁹ Sophie Forgan, "'A national treasure trove of a unique kind' (W. L. Bragg): some reflections on two hundred years of institutional history" in Frank A. J. L. James (ed.), *The Common Purposes of Life: Science and Society at the Royal Institution of Great Britain* (Aldershot: Ashgate, 2002): 17-42, on 17-19.

⁵⁰ Berman, *Social Change and Scientific Organization*, 45.

⁵¹ Berman, *Social Change and Scientific Organization*, 11.

relationship between the landed and commercial classes.⁵² Berman made the argument that Davy's impact on the social history of science was bigger than his impact on the discipline of chemistry itself, a conclusion that was easy to reach as Berman ignored Davy's decomposition experiments with the voltaic pile.⁵³ An "externalist" history like Berman's was bound to find Davy's social impact more important, the balance with an "internalist" history of the development of Davy's chemical theories while at the Royal Institution has since been redressed by David Knight and Jan Golinski, which is not to say that either Golinski or Knight's work was solely "internalist."⁵⁴

In looking at the activities and interests of the distinguished patronesses outside of the Royal Institution, this thesis owes much to Berman's method of examining the interests of the improving landlords.⁵⁵ For example, Berman argued that George O'Brien Wyndham (1751-1837), third Earl of Egremont "was convinced of the value of science for agriculture."⁵⁶ Yet it was the Earl's mistress and later wife, Elizabeth Ilive, known as Mrs Wyndham and then Countess of Egremont, not the Earl, who established and used the chemical laboratory in the house on the Earl's Petworth estate. After the Earl and Elizabeth Ilive separated the laboratory at Petworth fell into disuse, and Alison McCann noted little was known about Elizabeth after she left Petworth, including whether she took any of her laboratory equipment with her.⁵⁷ As Mrs Wyndham, Elizabeth Ilive made repeat subscriptions to the Royal Institution roughly spanning the period of study, evidence that she did in fact keep up her scientific pursuits after her separation from the Earl.⁵⁸

Berman explained the male landed class interest in science as a means to the end of attaining wealth and managing estates.⁵⁹ In a couple of cases, the activities of women at the Royal Institution would even support Berman's argument that the

⁵² Berman, *Social Change and Scientific Organization*, 80.

⁵³ Berman, *Social Change and Scientific Organization*, 74.

⁵⁴ Golinski, *Science as Public Culture* and Knight, *Humphry Davy: Science and Power*.

⁵⁵ Berman, *Social Change and Scientific Organization*, 41-45.

⁵⁶ Berman, *Social Change and Scientific Organization*, 43.

⁵⁷ McCann, "A private laboratory at Petworth House, Sussex, in the late eighteenth century," 641.

⁵⁸ See Chapter 2, "Methodology," 73.

⁵⁹ Berman, *Social Change and Scientific Organization*, 39-40.

Royal Institution was orientated towards this landed class interest in agriculture and mining – except that this would require expanding Berman’s “improving landlords” to “improving landladies.” Diana Beaumont (née Wordsworth, 1765-1831), one of the Royal Institution’s few female Proprietors, was of this mould and is discussed in Chapter 4, “‘A very incongruous union:’ fashion and chemistry.” A further example is that of Mary Ann Gilbert (1776-1845), wife of the Cornishman Davies Gilbert (formerly Giddy, 1767-1839) who took over after Davy as President of the Royal Society of London. He was one of Davy’s first patrons, and Davy acted as a witness to their marriage on 18 April 1808.⁶⁰

In 1815, Mary Ann Gilbert recalled that she came under attack in her London house in Holles Street “by the mob raised by the corn bill,” in which 48 panes of glass were broken, and the street door would have been broken too had soldiers not fired at the mob to disperse them.⁶¹ During the Napoleonic Wars, regiments of volunteer militia led by the landed classes were assembled in case of invasion – but they were used to quell domestic unrest too. Four years after Gilbert’s house was attacked, local militia units attacked a crowd that had assembled to hear the radical parliamentary reformer Henry Hunt (1773-1835) in Manchester, killing nine men, two women, and injuring hundreds of men and women, in what became known as the Peterloo Massacre.⁶²

The direct experience of threat to her life and wealth from riots caused by poverty in 1815 may have spurred Mary Ann Gilbert on when she became an “improving landlady” in her later years. Her papers from 1832 onwards reveal a commitment to reducing the poor rates (a tax paid by landowners to provide relief for the poor) by establishing agricultural schools for her tenants and changing agricultural practices.⁶³ At two consecutive meetings of the British Association for the Advancement of Science in July 1841 in Plymouth and June 1842 in Manchester,

⁶⁰ *Marriage Settlement, Davies Giddy to Mary Ann Gilbert, 18 April 1808*, part of the Davies Gilbert Papers (DG), held at the Cornwall Record Office, DG/39.

⁶¹ Mary Ann Gilbert, *Autobiographical notes by Mary Ann Gilbert, 1776-1816*, part of the Enys papers (hereafter EN), held at the Cornwall Record Office, EN/1915.

⁶² Colley, *Britons*, 264.

⁶³ *Album containing information collected by Francis Gilbert Enys on his grandmother Mary Ann Gilbert, 1832-1844*, EN/1924.

after her husband's death, Mary Ann Gilbert communicated two papers in the statistics section, "Results of some Experiments on a System of small Allotments and Spade Husbandry"⁶⁴ and "On the Advantages arising from Spade Husbandry and Agricultural Education."⁶⁵ In the second paper, Gilbert boasted that her tenants' "careful weeding, manuring, and cultivation of the land" to produce more wheat meant that she had been able to double agricultural rents.⁶⁶

According to Bette Polkinghorn, Jane Marcet's frightening experience of fleeing the anti-Catholic Gordon Riots as a child in 1780 also led to a life-long fear of "the acts of angry mobs."⁶⁷ Before they fled, Marcet's nursemaid dressed Jane and her sister in "their oldest cloaks and plainest hats" and forbade them from speaking French to one another.⁶⁸ Marcet was not a Catholic, but the daughter of a wealthy Swiss protestant émigré, Anthony Francis Haldimand (1740/41-1817) – a difference the mob was feared not to appreciate. In 1805, Jane's husband, Alexander, a Huguenot émigré from Geneva, joined the Light Horse Volunteers along with Jane's brothers, in part to prove his loyalty to his adopted homeland.⁶⁹

Female stories are missing from Berman's account of the development of the Royal Institution. Indeed, to an extent, he wrote women out of the Institution's early history. Like Berman, I have used the method of prosopography to elucidate any commonalities among a particular group at the Royal Institution. Prosopography is not without its pitfalls. Berman selected the Proprietors for prosopographical study, ignoring the Annual and Life Subscriber groups, and among those Proprietors he used the first 57 who bought shares to argue that the Royal Institution was under the control of improving landlords.⁷⁰ As Frank James has argued, other competing interest groups at the Royal Institution were subsequently left out of Berman's

⁶⁴ Mary Ann Gilbert, "Results of some Experiments on a System of small Allotments and Spade Husbandry" in *Report of the Eleventh Meeting of the British Association for the Advancement of Science: Held at Plymouth in July 1841* (London, 1842), on 98.

⁶⁵ Mary Ann Gilbert, "On the Advantages arising from Spade Husbandry and Agricultural Education" in *Report of the Twelfth Meeting of the British Association for the Advancement of Science: Held at Manchester in June 1842* (London, 1843), on 99.

⁶⁶ Gilbert, "On the Advantages arising from Spade Husbandry and Agricultural Education," 99.

⁶⁷ Polkinghorn, *Jane Marcet: An Uncommon Woman*, 4-5.

⁶⁸ Polkinghorn, *Jane Marcet: An Uncommon Woman*, 4.

⁶⁹ Polkinghorn, *Jane Marcet: An Uncommon Woman*, 19.

⁷⁰ Berman, *Social Change and Scientific Organization*, 41.

account.⁷¹ Furthermore, I would argue, by focussing on those who bought the first 57 Proprietor shares in 1799, Berman did not take into account that what the first Proprietors believed the Royal Institution would be, and what it would become by 1810, could be two different things. By 12 June 1809 there were 374 Proprietors, but there were 5,852 Annual Subscribers and, moreover, the income derived from annual subscriptions outstripped the income from the sale of Proprietors' shares from 1803 onwards.⁷² In 1803, the Royal Institution started, somewhat reluctantly, to make adjustments so that it better met the demands of Annual Subscribers, often at the expense of Proprietors' privileges.

The Proprietor group was exclusively male until 4 February 1805; by 1810 eleven women had been elected Proprietors, largely through inheritance. A social history of the Royal Institution that looks only at the interests of Proprietors (particularly early Proprietors) therefore precludes female involvement. Berman did not include in his study most of the Proprietors elected after 2 May 1803, on the grounds that very few Proprietors were elected after this date,⁷³ although Miss Susan Ross, elected Proprietor on 1 May 1805,⁷⁴ somehow made the cut. This meant that only one out of the 11 female Proprietors made it into Berman's study.⁷⁵ This lone woman in Berman's study was uncommented upon, she was labelled as part of the group of "NIAs" (no information available), a group not homogenous enough to exert political influence, according to Berman.⁷⁶

Furthermore, there are a couple of instances when Berman even altered sources to downplay female involvement. Berman quoted a published lecture given by Davy on 3 March 1810, "Our doors are open to all who wish to profit by knowledge...,"

⁷¹ James, "Agricultural Chymistry is at present in its infancy," 369.

⁷² "Annual Report of the Visitors of the Royal Institution to the Proprietors, 18 April 1809," RI MS Guard Book, Volume I, on 57.

⁷³ Morris Berman, *Social Change and Scientific Organization: The Royal Institution, 1799-1810* (Johns Hopkins University PhD thesis, 1971), on 245.

⁷⁴ RI MM, 1 May 1805, 4:50. Susan Ross inherited the share of her father, Major General Patrick Ross, upon his death.

⁷⁵ Berman, *Social Change and Scientific Organization. PhD Thesis*, 276.

⁷⁶ Berman, *Social Change and Scientific Organization. PhD Thesis*, 28.

in the context of a struggle for control of science between landed and commercial interests.⁷⁷ However, the full quote, not given by Berman, reads:

Our doors are to be open to all who wish to profit by knowledge; and I may venture to hope, that even the female parts of our audiences, will not diminish, and that they will honour the plan with an attention that is independent of fashion, or the taste of the moment, and connected with the use, the permanence, and the pleasure of intellectual acquisitions.⁷⁸

Davy's open door was promised not to commercial interests or even a wider "general public" but to the upper class women, who, as the quote makes clear, already attended the Royal Institution. In a second example, Berman changed "Lord Winchilsea, Sir Thomas Bernard, *Lady* Palmerston &c."⁷⁹ to "Lord Winchilsea, Sir Thomas Bernard, *the* Palmerstons and others,"⁸⁰ thereby removing Viscountess Palmerston's agency to act independently without her husband. In the source that Berman quoted from, Bence Jones's history of the Royal Institution, her husband is not mentioned and Viscountess Palmerston is acting alone.

Berman does give Viscountess Palmerston the credit of Rumford's "entry into British Society,"⁸¹ and noted that Rumford's relationship with the Palmerstons resulted in requests to install Rumford stoves and fireplaces in over fifty aristocratic households.⁸² However, Berman argued "the foundation of the RI [Royal Institution], and its early history, are not to be attributed to the activities of Count Rumford," and thus the potential impact on the Royal Institution of this collaborative relationship between the distinguished patroness Viscountess

⁷⁷ Berman, *Social Change and Scientific Organization*, 98.

⁷⁸ Humphry Davy, "A lecture on the plan which it is proposed to adopt for improving the Royal Institution and rendering it permanent, delivered in the theatre of the Royal Institution March 3rd, 1810," (London, 1810), on 37. This lecture was printed at the request of the Managers, a copy can be found in the archives of the Royal Institution in Pamphlets, Volume 1, and will be cited hereafter as *3 March 1810 lecture*, followed by page number.

⁷⁹ Bence Jones, *The Royal Institution*, 146, my emphasis. It is also *Lady* Palmerston not *the* Palmerstons in the original source that Bence Jones transcribed, see Chapter 3, "A 'partly obscure reversal,'" 102.

⁸⁰ Berman, *Social Change and Scientific Organization*, 27, my emphasis.

⁸¹ Berman, *Social Change and Scientific Organization*, 13

⁸² Berman, *Social Change and Scientific Organization*, 13.

Palmerston and Count Rumford is not explored in Berman's study.⁸³ Rumford's willingness to appeal to women and the regard for his work among upper class women has been noted in other cases. While in Munich, Rumford had appealed to women to support his welfare reforms, knowing that they lacked other opportunities to participate in local politics.⁸⁴ The aristocratic women who ran the *Junta de socias de honor y mérito* and *Asociación de señoras*, two all-female societies in late-eighteenth century Madrid who used chemistry for philanthropic purposes, were informed by Rumford's work.⁸⁵

While Berman's account of the history of the early years of the Royal Institution is significant for grounding the Royal Institution within a wider social context, it gives dominance to a particular group that is not justified by the available evidence and suffers from a gender bias.

1.2 Audiences for science

In his *Science as Public Culture* (1992), Jan Golinski accepted Berman's account of the circumstances that led to the formation of the Royal Institution and accepted "the direction taken by the RI was determined by the economic and intellectual interests of the Proprietors," interests that, as Golinski noted, were supposedly mainly agricultural.⁸⁶ However, Golinski's account of Davy's tenure at the Royal Institution then goes on to directly undermine Berman's thesis. Berman maintained that the public image of the Royal Institution was that of a "Society of Husbandry," whereas Golinski's account of Davy as "the public face of science" was centred on Davy's chemical researches using the voltaic battery. Berman argued that Davy's national reputation came from Davy's authorship of *Elements of Agricultural Chemistry* (1813), not the decomposition experiments that form the focus of Golinski's study.⁸⁷ It should be noted here that Berman's account of Davy's national reputation was exemplified by a reference to Davy's text on Agricultural Chemistry

⁸³ Berman, *Social Change and Scientific Organization*, 31.

⁸⁴ Anna Maerker, "Political Order and the Ambivalence of Expertise: Count Rumford and Welfare-Reform in Late Eighteenth Century Munich," *Osiris* 25 (2010): 213-230, on 228.

⁸⁵ Elena Serrano, "Chemistry in the city: the scientific role of female societies in late-eighteenth century Madrid," *Ambix* 60 (2013): 139-159, on 140 and 147.

⁸⁶ Golinski, *Science as Public Culture*, 191.

⁸⁷ Berman, *Social Change and Scientific Organization*, 48.

in Marian Evans's (pseud. George Eliot, 1819-1880) *Middlemarch* (1871-2), a novel that appeared decades after Davy's death.⁸⁸ Davy's *Elements of Agricultural Chemistry* was not published until after Davy left paid employment at the Royal Institution. Neither of these texts is therefore suitable to describe Davy's national reputation while he was lecturing at the Royal Institution. Golinski's latest study of Davy, *The Experimental Self* (2016), demonstrates that Davy worked hard to fashion the persona of philosopher "disinterested" in monetary gain.⁸⁹ Thus Davy would have abhorred Berman's characterisation of him as a "salesmen of science."⁹⁰ Golinski's work allows Davy much more agency than Berman did, and is a more accurate reflection of Davy's national reputation while he was at the Royal Institution.

Yet Golinski's first study of Davy as the public face of science was lacking in something that Berman's account did not, namely evidence from the Royal Institution's audience. As Roger Cooter and Stephen Pumfrey put it in their survey of the historiography of public science from 1985-1994, of which Golinski's study was one example:

in truth, it is less upon the audiences themselves that this work concentrates, than on the sites, the methods – the theatrics – and the individuals involved in the different social tailorings and legitimations of scientific knowledge.⁹¹

In *Science as Public Culture*, Golinski's argument pivots upon the relationship between Davy and his various audiences, in particular the need for those audiences to accept that Davy's voltaic battery had the power to decompose compounds into elements.⁹² However, not much evidence from the Royal Institution audience themselves was given. Golinski uses a review written by Henry Brougham to show that Davy's battery was accepted as "an instrument of analysis" before he

⁸⁸ Berman, *Social Change and Scientific Organization*, 61.

⁸⁹ Golinski, *The Experimental Self*, 127.

⁹⁰ Berman, *Social Change and Scientific Organization*, 99.

⁹¹ Roger Cooter and Stephen Pumfrey, "Separate Spheres and Public Places: Reflections on the History of Science Popularization and Science in Popular Culture," *History of Science* 32 (1994): 237-268, on 243.

⁹² Golinski, *Science as Public Culture*, 206.

decomposed soda and potash into sodium and potassium respectively.⁹³ Brougham's was a review of Davy's 1806 Bakerian lecture given to the Royal Society of London,⁹⁴ and therefore does not show that the *Royal Institution* audience accepted Davy's message. Brougham was the Royal Institution's severest critic and there is no evidence in the records of Brougham subscribing within the time period of this study.⁹⁵ The evidence that the Royal Institution audience believed chlorine to be elemental is provided in the more suitable account of Michael Faraday, who did attend Davy's lectures in 1812.⁹⁶ Further evidence that the Royal Institution audience accepted Davy's assertion that chlorine was an element was given in a report of one of Davy's Royal Institution lectures printed in three monthly periodicals.⁹⁷ It is likely the unidentified person wrote the report after attending the lecture, but how representative periodicals are of the spectrum of audience opinion at the Royal Institution must be taken into account.

The problem is that in *Science as Public Culture* Golinski conflates different audiences. Golinski shows how Davy used the authority of select, small audiences of chemical specialists to prove the validity of his demonstrations at the Royal Institution laboratory and in Edinburgh.⁹⁸ However, it does not then follow that "appeal to a public audience," by which Golinski meant the audience in the Royal Institution lecture theatre, "can consolidate and strengthen knowledge in the expert realm."⁹⁹ Indeed, as Golinski notes, those experts who challenged Davy argued that the audience at the Royal Institution would accept uncritically whatever Davy told them to be true – this would have the effect of weakening Davy's claims in the expert realm.¹⁰⁰ Nor does it follow from these accusations by experts of blind acceptance that the Royal Institution audience did accept Davy's claims. More

⁹³ Golinski, *Science as Public Culture*, 212.

⁹⁴ Henry Brougham, Review of Humphry Davy's 1806 Bakerian Lecture "On some Chemical Agencies of Electricity," *Edinburgh Review* 11 (January 1808): 390-398.

⁹⁵ Henry Brougham was a Trustee of the Fuller Endowment that made Michael Faraday the first Fullerman Professor of Chemistry at the Royal Institution in 1833, see RI MM, 18 February 1833, 8:74.

⁹⁶ Golinski, *Science as Public Culture*, 231.

⁹⁷ Golinski, *Science as Public Culture*, 230-1.

⁹⁸ Golinski, *Science as Public Culture*, 220-222 and 228.

⁹⁹ Golinski, *Science as Public Culture*, 235.

¹⁰⁰ Golinski, *Science as Public Culture*, 231.

evidence from the Royal Institution audience members themselves is needed to strengthen Golinski's argument.

George Foote's "Sir Humphry Davy and his audience at the Royal Institution" is the only scholarly paper to make the audience at the Royal Institution its central subject.¹⁰¹ It was written sixty-six years ago, before the field was influenced by feminism. Foote's paper, to an even greater extent than Golinski's *Science as Public Culture*, draws conclusions about the audience without supplying evidence from the audience. For example, Foote uses the transcriptions of Humphry Davy's lectures that were published in John Davy's *The Collected Works of Humphry Davy* (1840) to argue that the audience was most interested in "the ends of chemical science," i.e. its application.¹⁰² Foote's speculation that young women enjoyed the historical references in Davy's lectures was likewise based on John Davy's transcripts of his brother's lectures, not on evidence from the young women themselves. Despite noting, "Over half of the audience was female," the only woman Foote quoted in the paper was Elizabeth, Lady Holland (1771-1845).¹⁰³ In contrast, Foote's paper was rich in male commentary, in particular criticisms of the female audience at the lectures from Robert Southey (1774-1843), John Keats (1795-1821) and Louis Simond.¹⁰⁴

This thesis gives the history of the first thirteen years of the Royal Institution from the perspective of women who attended its lectures. In prioritising accounts from the female audience, as opposed to lecturers or organisers, I am following the example set by Rebekah Higgitt and Charles Withers in their 2008 study of the female audiences at the British Association for the Advancement of Science (BAAS) meetings in the nineteenth century.¹⁰⁵ Higgitt and Withers described their study as a "counterbalance" to those studies that portrayed women fighting against

¹⁰¹ George A. Foote, "Sir Humphry Davy and his audience at the Royal Institution," *Isis* 43 (1952): 6-12.

¹⁰² Foote, "Sir Humphry Davy and his audience at the Royal Institution," 8.

¹⁰³ Foote, "Sir Humphry Davy and his audience at the Royal Institution," 9 and 11.

¹⁰⁴ Foote, "Sir Humphry Davy and his audience at the Royal Institution," 10-11.

¹⁰⁵ Rebekah Higgitt and Charles W. J. Withers, "Science and Sociability: Women as Audience at the British Association for the Advancement of Science, 1831-1901," *Isis* 99 (2008): 1-27.

expectations to produce scientific knowledge.¹⁰⁶ They found that the gender norms propagated in descriptions of the female audience in press reports and periodicals were in fact reinforced in most of the accounts given by female audience members in diaries, letters and reminiscences.¹⁰⁷ The majority of women at the BAAS meetings conformed to Victorian ideals of femininity, thus complying with and informing the media's creation of a passive, acquiescent, feminine "public" for science, a public that could be easily distinguished from the male lecturers who created scientific knowledge.¹⁰⁸

Golinski argued that the "general public" was in attendance at Davy's Royal Institution lectures:¹⁰⁹ but while the audience at the Royal Institution, which numbered in the low thousands, was indeed more diverse than Davy's audience at the Royal Society; characterising the audience at the Royal Institution as the "general public" is misleading. To a large extent, the audience was gathered from the existing circles of the Managers, Proprietors, distinguished patronesses and lecturers. There is a sense of "public" standing in for "women" in Golinski's use of the term. Specialists were separated out as a distinct group who "joined the general public" at the Royal Institution, but Golinski later argued that the only clear way to differentiate between the amateur and the specialist was through gender, as women were excluded from specialist training and research.¹¹⁰

Higgitt and Withers also remarked that while it might not be clear whether a man had scientific knowledge or not, it was "a fair assumption" that a woman did not.¹¹¹ The same level of assumption would not have been possible in the early-nineteenth century, an era before professional scientists. The forging of an ideal public for science that was passive, appreciative and feminine was also anticipated in Saba Bahar's 2001 study of Jane Marcet's *Conversations on Chemistry* (1806). Bahar argued that Marcet, perhaps the most well-known woman to have attended lectures at the Royal Institution, was part of a Geneva patrician project that

¹⁰⁶ Higgitt and Withers, "Science and Sociability," 26.

¹⁰⁷ Higgitt and Withers, "Science and Sociability," 18.

¹⁰⁸ Higgitt and Withers, "Science and Sociability," 9, 18 and 26-27.

¹⁰⁹ Golinski, *Science as Public Culture*, 189.

¹¹⁰ Golinski, *Science as Public Culture*, 261.

¹¹¹ Higgitt and Withers, "Science and Sociability," 11.

encouraged women from the upper classes to appreciate chemistry but discouraged them from making a profession of the subject.¹¹² Golinski made this same point about Marcet's work – work that recommended limitations on female involvement in chemistry.¹¹³

It is remarkable how stable and uncontested the dichotomy of male lecturer and female audience remains throughout Higgitt and Withers' study of BAAS meetings, a study that extends beyond the entire reign of Queen Victoria. The authors themselves remark that gender norms in the Victorian era were so "enduringly strong" that a passive female audience was guaranteed for the BAAS.¹¹⁴ In contrast to what Higgitt and Withers's study reflects of the stable gender ideals of the Victorian era, in the Napoleonic era gender identities were more in flux. It suggests that an ideal feminine audience for science must have been created earlier than the BAAS meetings, and, given the arguments made by Bahar and Golinski, it is likely that the process was underway at the Royal Institution.

What is notable about the audience at the Royal Institution, in comparison to the audience at the BAAS, was how often the Royal Institution audience was described as "fashionable." Diana Donald, in her survey of caricatures in the reign of King George III, has shown that, for late-eighteenth century moralists, fashion was feared as an instrument of female dominance that brought social disruption.¹¹⁵ Fashion was thought to dismantle traditional gender and class hierarchies, and following the conservative reaction in Britain to the French Revolution, anxiety around the power of fashion intensified.¹¹⁶ The labelling of the Royal Institution's audience as "fashionable" should be placed in this context – for critics it was seen as the female corruption of science.

Unlike the BAAS meetings which took place across the Great Britain, the Royal Institution lectures stayed put in the heart of fashionable territory – London's West End. Caricatures throughout the eighteenth-century portrayed London as a place of

¹¹² Bahar, "Jane Marcet and the Limits to Public Science," 40.

¹¹³ Golinski, *Science as Public Culture*, 261.

¹¹⁴ Higgitt and Withers, "Science and Sociability," 17.

¹¹⁵ Donald, *The Age of Caricature*, 85, 87, 100 and 102.

¹¹⁶ Donald, *The Age of Caricature*, 85.

corruption, full of temptations to take women away from their domestic duties.¹¹⁷ The Metropolis was contrasted unfavourably against virtuous country life; the fictional “Rusticus” was a common magazine correspondent in the 1770s, professing his bemusement at the fashionable trends of Town and anxiety at their consequences.¹¹⁸ So it is significant that Reverend Thomas Frognall Dibdin (1776-1847), lecturer at the Royal Institution, would resurrect Rusticus, critic of the fashionable world, in 1807 for his *The Director* magazine, a publication that promoted the Royal Institution.

To comprehend the commentaries on the Royal Institution, therefore, an understanding of the implications of being called “fashionable” is imperative. Berman noted that his improving landlords patronised the Royal Institution due to a “fashionable” interest in science, but did not discuss where this fashion came from.¹¹⁹ In her informal history of the Royal Institution, Gwendoline Mary Caroe (1907-1982), daughter of Sir William Henry Bragg (1862-1942), noted “how often the word ‘fashion’ appears” in the Royal Institution’s early records.¹²⁰ However, Caroe did not connect fashion to female influence, despite noting that a committee of “distinguished ladies” (the distinguished patronesses) considered and approved female applicants. Perhaps reflecting on her own experience of acting as hostess when resident with her father at the Royal Institution in the interwar years, Caroe credited the distinguished patronesses for creating a “pleasant social atmosphere,” as opposed to making the Royal Institution fashionable.¹²¹

Foote anticipated my arguments about the influence of fashion without giving specific evidence: the audience at the Royal Institution thus “loaned the prestige of their names” (although Foote gives no names as examples) and “set the tone of British social activities.”¹²² Likewise, Foote argued that “social acceptability aided the success” of the Royal Institution project.¹²³ However, like Caroe, Foote did not

¹¹⁷ Donald, *The Age of Caricature*, 80-84 and 101-103.

¹¹⁸ Donald, *The Age of Caricature*, 80.

¹¹⁹ Berman, *Social Change and Scientific Organization*, 40.

¹²⁰ Caroe, *The Royal Institution*, 4.

¹²¹ Caroe, *The Royal Institution*, 16.

¹²² Foote, “Sir Humphry Davy and his audience at the Royal Institution,” 12.

¹²³ Foote, “Sir Humphry Davy and his audience at the Royal Institution,” 10.

make the connection of the late eighteenth-century moralists between fashion and female power, and did not investigate the individual, fashionable women who did make the Royal Institution a success.

Caroe, Foote and Berman all treated the “fashionable” label of the Royal Institution as fairly innocuous. Saba Bahar did not. She noted too that in the contemporary cultural imagination it was women in particular who were the “key vehicles of fashion.”¹²⁴ In order for Jane Marcet’s work to meet the Geneva patricians’ approval, Marcet had to extricate herself from the “explosive potential” of the fashionable female audience at Davy’s lectures.¹²⁵ Marcet’s *Conversations* was for Bahar not simply a complementary text to Davy’s lectures, but an attempt to “forestall” the “potential dangers of women’s fashionable exposure to chemistry” by marking out a part of chemistry as belonging to the professional man.¹²⁶ The danger was not to the women, but rather to a “philosophical,” “disinterested” status of chemistry.¹²⁷ Marcet knew the influence of fashionable women had to be tackled before female audiences could become an ideal, acquiescent public for science.

Although Golinski noted in *Science as Public Culture* (1992) that Davy’s audience was “to a significant degree feminine,”¹²⁸ it was seven years later, in his paper “Humphry Davy’s Sexual Chemistry,” that Golinski examined how a female audience might threaten Davy’s masculinity in the Napoleonic era. Golinski’s paper then formed the basis of a chapter, “The Dandy,” in his latest study of Davy, *The Experimental Self* (2016). Golinski shows that Davy’s time spent under the female gaze in the Royal Institution lecture theatre led to accusations of his being a dandy by the Tory press.¹²⁹ Ellen Moers has described the dandy as “a creature perfect in externals and careless of anything below the surface, a man dedicated solely to his own perfection through a ritual of taste.”¹³⁰ Moers argued that the dandy was born

¹²⁴ Bahar, “Jane Marcet and the Limits to Public Science,” 44.

¹²⁵ Bahar, “Jane Marcet and the Limits to Public Science,” 39.

¹²⁶ Bahar, “Jane Marcet and the Limits to Public Science,” 45.

¹²⁷ Bahar, “Jane Marcet and the Limits to Public Science,” 45.

¹²⁸ Golinski, *Science as Public Culture*, 194.

¹²⁹ Golinski, “Humphry Davy’s Sexual Chemistry,” 20.

¹³⁰ Ellen Moers, *The Dandy* (London: Secker and Warburg, 1960), on 13.

out of the upheaval of the French Revolution, when the place of aristocracy and monarchy had been questioned, leaving “ephemera such as style and pose” to be “called upon to justify the stratification of society.”¹³¹ That new stratification was ordered by who was fashionable and who was not – such social upheaval chimes with Donald’s characterisation of fashion’s capacity for social disruption. With Davy, as Golinski shows, the gender hierarchy had been disrupted by Davy’s appeals to women in the lecture theatre and what was seen as his “subordination” to his wife, the Bluestocking Jane Apreece.¹³² However, I would argue that to support the scientific education of women was not as controversial as Golinski suggests.¹³³ The particular problem some commentators had with the women at the Royal Institution was not that they were women *per se*, but rather that they were fashionable, *vide* Jane Marcet distancing herself from the fashionable women in the audience – Maria Edgeworth (1768-1849), who attended Davy’s lectures at the Dublin Society, employed similar tactics. Fashion put women in a position of power, and it was that influence that was feared.

1.3 Rulers of opinion – a feminist history of the Royal Institution

To think that fashion was seen solely as a negative influence in the early-nineteenth century would be a mistake. The abundance of pontificating commentary about fashion that has survived in archives diminishes the other side of the story. Donald noted that caricatures parodying fashion in fact had little effect in lessening the draw of fashion in the eighteenth century.¹³⁴ Despite the moralists’ efforts, country-dwellers still desired to live fashionable life vicariously, as seen in the huge circulation of caricatures of fashionable London.¹³⁵ In the latter half of the eighteenth century, fashion became more valued owing to an association with aesthetic theory, which recognised taste as subjective and dependent on “the social glamour of the available models.”¹³⁶ Fashionable women in this role could bring about changes in taste that were a “harmless phenomenon common to every

¹³¹ Moers, *The Dandy*, 12.

¹³² Golinski, *The Experimental Self*, 76.

¹³³ Golinski, *The Experimental Self*, 76.

¹³⁴ Donald, *The Age of Caricature*, 89.

¹³⁵ Donald, *The Age of Caricature*, 89.

¹³⁶ Donald, *The Age of Caricature*, 89.

age.”¹³⁷ Gwendy Caroe valued the “leaders of fashion” who were essential to the Royal Institution’s survival and growth, as fashion leaders dictated opinion on art, music, literature and thought as well as dress and manners.¹³⁸ Golinski too noted that Davy acknowledged the value of the upper classes as “guardians of refinement and civilisation.”¹³⁹

This positive power ascribed to upper class women to lead by example is reflected in the choice of the title of this thesis, *Rulers of Opinion*. The phrase is taken from a letter written in 1818 by the Genevan Marc-Auguste Pictet (1752-1825), co-founder of the *Bibliothèque Britannique*, a letter that described a handful of men and women, some of whom were involved at the Royal Institution, as “rulers of opinion.”¹⁴⁰ For Pictet, women as well as men could bring about cultural and social change by influencing the behaviour of their élite peers.

When the Royal Institution was founded, such a change was needed. Caricatures sold from print shops and circulated across Great Britain spread an image of a degenerate aristocracy following the French Revolution.¹⁴¹ Diana Donald has noted these satirical attacks reached a “remarkable climax” following the “hysterical” attacks in the press against the Pic Nic Society, an aristocratic group who put on private theatricals for themselves. James Gillray then went for the jugular in his caricature, *Dilettanti-Theatricals; or a Peep in the Green Room* (1803), which associated the Pic Nic society with sexual depravity. On 20 February 1802, Sir Gilbert Elliot, first Earl of Minto (1751-1814), remarked to his wife “The fine world is at present engaged in a controversy concerning the private theatre. You will have seen the names of the lady patronesses, managers, &c. in the newspapers.”¹⁴² Elliot went on to distance himself from such activities, and those who took part, emphasising instead his attendance of the Royal Institution lectures which were

¹³⁷ Donald, *The Age of Caricature*, 89.

¹³⁸ Caroe, *The Royal Institution*, 4.

¹³⁹ Golinski, *Science as Public Culture*, 193.

¹⁴⁰ Marc-Auguste Pictet to William Allen, 15 August 1818, quoted in David Bickerton and René Sigrist (eds.) *Marc-Auguste Pictet, 1752-1825, Correspondance Sciences et Techniques*, in three volumes (Geneva: Slatkine, 2000), on 3:14.

¹⁴¹ Donald, *The Age of Caricature*, 107.

¹⁴² Sir Gilbert Elliot to Lady Minto, 20 February 1802, in Nina Minto (ed.) *Life and Letters of Sir Gilbert Elliot, First Earl of Minto* in three volumes (London, 1874), on 3:240.

“much more entertaining than the pic-nic.”¹⁴³ Attending the Royal Institution, or so Elliot hoped, was a pastime looked upon more favourably than pic-nics, and other commentators such as Francis Horner, Louis Simond and Benjamin Silliman would later concur.

However, in May 1802, at the time of the Pic Nic Society controversy, Gillray published his *Scientific Researches! or New Discoveries in Pneumatticks! or an Experimental Lecture on the Powers of Air* (see Figure 1). Gillray’s caricature ridiculed the crowd at the Royal Institution with toilet humour. Donald has remarked that Gillray’s hunt of the aristocracy in this period was tenacious, no matter how “serious, boring or innocent” their pursuits, and left in its wake an image of a debauched aristocracy that persisted into the nineteenth century.¹⁴⁴ The only contemporary image to survive of the Royal Institution’s first audience is the one created by a caricaturist notorious for attacking the aristocracy.



Figure 1. James Gillray, *Scientific Researches! or New Discoveries in Pneumatticks! or an Experimental Lecture on the Powers of Air* (1802), by courtesy of the Royal Institution of Great Britain.

¹⁴³ Sir Gilbert Elliot to Lady Minto, 20 February 1802, *Life and Letters of Sir Gilbert Elliot*, 3:240.

¹⁴⁴ Donald, *The Age of Caricature*, 108-7.

An important precedent to the women at the Royal Institution is found in the eighteenth-century Bluestocking Circle, who attempted to reform the behaviour of their gambling peers. These literary hostesses made writers household names. The aristocratic women of the Bluestockings also provided fodder for caricaturists and satires. Many of the Royal Institution subscribers in fact called themselves Bluestockings. This thesis has been informed by scholarship on the Bluestocking Circle, placing women at the Royal Institution into a longer history of female intellectualism.¹⁴⁵ It also extends Bluestocking scholarship by using the female audience at the Royal Institution to explain the chemical turn of Bluestocking satire in the early-nineteenth century. Furthermore, this thesis challenges the argument that the French Revolution spelt the end for the Bluestockings, given that Bluestockings were still active at the Royal Institution in the early-nineteenth century, while accepting that the term became more derogatory.

Aristocratic women, as well as men, were targets of the caricaturists and press. An answer to how the aristocracy could counter these attacks can be found in Linda Colley's thesis of the service élite. Colley argued that, in the aftermath of the loss of thirteen American colonies and the French Revolution, the British aristocracy needed to convince others and themselves of their right and ability to rule.¹⁴⁶ In order to convince, they moulded themselves into what Colley has called a "service élite."¹⁴⁷ The service élite endeavoured to be characterised by "relentless hard work, complete professionalism, an uncompromising private virtue and an

¹⁴⁵ Elizabeth Child, "Elizabeth Montagu, Bluestocking Businesswoman," in Nicole Pohl and Betty A. Schellenberg (eds.) *Reconsidering the Bluestockings* (San Marino, California: Huntington Library, 2003): 153-173; Elizabeth Eger and Lucy Peltz (eds.) *Brilliant Women: 18th-Century Bluestockings* (London: National Portrait Gallery, 2008); Moyra Haslett, "Bluestocking Feminism revisited: the satirical figure of the bluestocking," *Women's Writing* 17 (2010): 432-451; Gary Kelly, "General Introduction" in Gary Kelly (ed.) *Bluestocking Feminism. Writings of the Bluestocking Circle, 1738-1785* (London: Pickering and Chatto, 1999) 1:ix-liv; Myers, *The Bluestocking Circle*; Nicole Pohl and Betty A. Schellenberg (eds.) *Reconsidering the Bluestockings* (San Marino, California: Huntington Library, 2003); Ann B. Shteir, "Green-Stocking or Blue? Science in Three Women's Magazines, 1800-50," in Louise Henson, Geoffrey Cantor, Gowan Dawson, Richard Nokes, Sally Shuttleworth, and Jonathan R. Topham (eds.) *Culture and Science in the Nineteenth-Century Media* (Aldershot: Ashgate, 2004): 3-13; and Sarah M. Zimmerman, "Romantic women writers in the lecture room," in Robert Demaria, Jr., Heesok Chang and Samantha Zacher (eds.) *Companion to British Literature, Volume III: Long Eighteenth-Century Literature 1660-1837* (Chichester: Wiley Blackwell, 2014): 380-395.

¹⁴⁶ Colley, *Britons*, 193.

¹⁴⁷ Colley, *Britons*, 192.

ostentatious patriotism.”¹⁴⁸ To achieve this, patrician sons were sent to public schools in greater numbers than before, where they were given “a constant diet of stories of war, empire, bravery and sacrifice for the state.”¹⁴⁹ Patrician men bought commissions in the army or led militias at home, spent a greater time in Parliament than previous generations, and even adopted a new quasi-military style of dress.¹⁵⁰ This image of the aristocracy as service élite countered the images of a degenerate aristocracy propagated by caricaturists like James Gillray. Yet Colley only makes explicit what men in the aristocracy could do to style themselves as a service élite. This begs the question, were aristocratic women engaged with transforming themselves into a service élite too? This thesis argues that getting involved with the Royal Institution was one way that women in the aristocracy could reinvent themselves as a service élite.

Ostentatious patriotism was an important component of the service élite’s image. Jan Golinski has shown how Davy appealed to his audience’s patriotism to raise subscriptions to build a voltaic battery bigger than that in Paris.¹⁵¹ Davy’s appeals to patriotism would have been as persuasive to the women in his audience as to the men. During the war against Revolutionary and then Napoleonic France, Colley stated, “women were more prominently represented among the ranks of conventional patriots in this conflict than in any of Britain’s previous wars.”¹⁵² One example given by Colley of this feminine, patriotic activism is that of Lavinia, Countess Spencer (1762–1831) who had also been one of the Royal Institution’s distinguished patronesses. In 1814, Countess Spencer instigated an all-female subscription to erect a public statue of the military hero of antiquity, Achilles, as a tribute to the Arthur Wellesley, Duke of Wellington (1769-1852). The statue was an exercise in “resplendent male nudity,” and was symptomatic of the “intensely romantic, and often blatantly sexual fantasies” that congregated around Napoleonic War heroes like Wellington and Horatio, Viscount Nelson (1758-1805) – fantasies

¹⁴⁸ Colley, *Britons*, 192.

¹⁴⁹ Colley, *Britons*, 168

¹⁵⁰ Colley, *Britons*, 183-187.

¹⁵¹ Golinski, *Science as Public Culture*, 216.

¹⁵² Colley, *Britons*, 254.

that were being aired by women in public much to the anxiety of many men.¹⁵³ Indeed, Colley argued, the “cult of heroism” of the Napoleonic Wars, a cult that encouraged male patricians to seek military service, flourished because of the female appetite for the heroes of the battlefield.¹⁵⁴ In Jane Austen’s (1775-1817) *Pride and Prejudice* (1813), the heroine Elizabeth Bennet’s youngest sisters, Catherine and Lydia, “could talk of nothing but officers,” and even the wealth of a man “was worthless in their eyes when opposed to the regimentals of an ensign.”¹⁵⁵ Contemporary reviews and readers praised (and criticised) Austen’s novels for their (too) realistic depiction of southern English life in the middle and upper classes.¹⁵⁶

Adeline Johns-Putra argued that for one young female audience member at the Royal Institution, the poet Eleanor Anne Porden, Davy was the “knight of science.”¹⁵⁷ I expand Johns-Putra’s concept of Davy as the knight of science to what I have termed chivalrous chemistry. In this era of unprecedented female patriotism, upper class women at the Royal Institution, including Porden, were part of a revival of chivalry. This revival was a deliberate echo of Edmund Burke, perhaps the best-known opponent of the French Revolution, and his famous lament in *Reflections on the Revolution in France* (1790) “the age of chivalry is gone.”¹⁵⁸ An idealised form of warfare associated with the aristocracy, chivalry upheld gender and class hierarchies – it was the antithesis of revolution. Instead of witnessing heroic male deeds at tournaments, Johns-Putra has argued that in the modernised warfare of the Napoleonic era, women poets bestowed praise “not in direct speech but through poetic tribute.”¹⁵⁹ Many of the women who subscribed to the Royal Institution, not just Porden, wrote such poetic tributes.

¹⁵³ Colley, *Britons*, 258.

¹⁵⁴ Colley, *Britons*, 257-8.

¹⁵⁵ Jane Austen, *Pride and Prejudice* in three volumes (London, 1813; 2nd ed.), volume 1, chapter 7. Although published in 1813, Austen wrote the first draft of *Pride and Prejudice* between 1796-1797.

¹⁵⁶ Annika Bautz, *The Reception of Jane Austen and Walter Scott: A Comparative Longitudinal Study* (London: Continuum, 2017), 60-61.

¹⁵⁷ Adeline Johns-Putra, “‘Blending Science with Literature:’ The Royal Institution, Eleanor Anne Porden and the Veils,” *Nineteenth-Century Contexts* 33 (2011): 35-52, on 42 and 44.

¹⁵⁸ Edmund Burke, *Reflections on the Revolution in France* (Dublin, 1790; 5th ed.), on 113.

¹⁵⁹ Adeline Johns-Putra, *Heroes and Housewives. Women’s Epic Poetry and Domestic Ideology in the Romantic Age (1770-1835)* (Bern: Peter Lang AG, European Academic Publications, 2001), on 52.

The field of English Literature has been as fruitful a source of scholarship for this thesis as the field of History of Science – Bluestocking scholarship is but one example. Many of the women who subscribed to the Royal Institution are previously unknown to the History of Science but familiar to scholars of English Literature. Johns-Putra’s scholarship on the poet Eleanor Anne Porden and her concept of the “knight of science” in particular, has greatly informed this study. On the other hand, studies that place Davy in the context of the Romantic Movement have had much less influence on the direction of this thesis because it prioritises the female audience at the Royal Institution.¹⁶⁰ In this thesis, the work of female writers in the Romantic era and Sir Walter Scott (1771-1832) feature, as opposed to Davy’s ties to the Samuel Taylor Coleridge (1772-1834), Robert Southey and William Wordsworth (1770-1850).

The female-led cult of heroism that swept through Britain during the Napoleonic Wars explains far more satisfactorily Davy’s national reputation than Berman’s assertion that Davy “captured the nation’s imagination” through his service to agricultural chemistry.¹⁶¹ Davy’s fame would be won by being a knight of science of the service élite, not by becoming a “public servant of science” that did soil analysis for the aristocracy.¹⁶² Johns-Putra argued that Davy formed the model knight of science for Porden’s chivalrous epic *The Veils, or, The Triumph of Constancy* (1815), but I argue that Davy, in response to the revival of chivalry among his female audience, also made himself a knight of science in the Royal Institution lecture theatre. It is in this way, as his friend Samuel Taylor Coleridge commented, that Davy was “determined to mould himself upon the age in order to make the age mould itself upon him.”¹⁶³ Berman instead argues that such moulding gave Davy a

¹⁶⁰ Wahida Amin, *The Poetry and Science of Humphry Davy* (University of Salford PhD thesis, 2013); Andrew Cunningham and Nicholas Jardine (eds.) *Romanticism and the Sciences* (Cambridge: Cambridge University Press, 1990); Trevor H. Levere, *Poetry Realized in Nature* (Cambridge: Cambridge University Press, 1981); and Sharon Ruston, “From ‘The Life of the Spinosit’ to ‘Life’: Humphry Davy, Chemist and Poet” in Margareth Hagen and Margery Vibe Skagen (eds.) *Literature and Chemistry: Elective Affinities* (Aarhus: Aarhus University Press, 2013): 77-97.

¹⁶¹ Berman, *Social Change and Scientific Organization*, 48.

¹⁶² Berman, *Social Change and Scientific Organization*, 48.

¹⁶³ Samuel Taylor Coleridge, January 1804, in Kathleen Coburn (ed.) *The Notebooks of Samuel Taylor Coleridge* in five volumes (London: Routledge and Kegan Paul, 1962) volume 2, entry 1855.

“career” as a “technological scientist,”¹⁶⁴ which, as Golinski has noted, is “completely anachronistic.”¹⁶⁵

Golinski argued that Davy’s career was “substantially responsible” for allowing chemistry to emerge “with greatly enhanced esteem and respectability” from the “crisis” of the 1790s, when it became associated with the radical politics of Joseph Priestley (1733-1804) and Thomas Beddoes (1760-1808).¹⁶⁶ Davy did this, Golinski argues, by appealing to a “wider public” than the small provincial circles of the chemical philosophers of the eighteenth century.¹⁶⁷ That “wider public” was “a large and diverse audience,” including the “London fashionable élite,” whom Davy “assembled around himself” at the Royal Institution.¹⁶⁸ The assertion that Davy could assemble his own audience is only partly correct. As will be shown in Chapter 2, “Methodology,” to an extent Davy was met at the Royal Institution with a ready-made audience, thanks in no small part to the efforts of the distinguished patronesses. While acknowledging that the radical circles that Davy moved amongst in Bristol provided a different setting to the conservative Royal Institution, Golinski does not provide a mechanism for this transformation other than pointing to this change in locality. It was the revival of a Burkean-type chivalry among the upper-class female audience that helped Davy change the reputation of chemistry.

Some of the women in this study have featured in previous collected biographies of women in the history of science, but such works, while achieving the much-needed recovery of untold female stories, have tended to give individual women as isolated examples without much detailed contextual grounding.¹⁶⁹ Indeed, the scope of these works, global or European histories from antiquity to modernity, would make such a task impossible. It is perhaps an unfair criticism of these texts whose aim is

¹⁶⁴ Berman, *Scientific Change and Social Organization*, 74.

¹⁶⁵ Golinski, *The Experimental Self*, 3.

¹⁶⁶ Golinski, *Science as Public Culture*, 188.

¹⁶⁷ Golinski, *Science as Public Culture*, 194.

¹⁶⁸ Golinski, *Science as Public Culture*, 188.

¹⁶⁹ Marelene Rayner-Canham and Geoff Rayner-Canham, *Women In Chemistry: Their changing roles from alchemical times to the mid-twentieth century* (Philadelphia: Chemical Heritage Foundation, 1998); Margaret Alic, *Hypatia’s Heritage. A History of Women in Science from Antiquity to the Late Nineteenth Century* (London: The Women’s Press Limited, 1986); Jan Apotheke and Livia Simon Sarkadi (eds.), *European Women in Chemistry* (Weinheim: Wiley-VCH, 2011).

rather to make the political point that women have always been involved in science. Instead, this work follows those studies of female communities in the history of science. Such studies anchor these communities through an institution or society as a shared starting point among those women: Higgitt and Withers study of the female audience at the BAAS in the Victorian era; the *Junta de socias de honor y mérito* and *Asociación de señoras* of late eighteenth-century Madrid;¹⁷⁰ and the *Natuurkundig Genootschap der Dames* of late eighteenth-century Middelburg.¹⁷¹ Building on the collective biographies that proved women's involvement in scientific practice throughout history, the scale of that involvement in particular historical moments can now be examined. The particular challenges of focusing on female as opposed to male actors are worth reflecting on here.

What is striking about Golinski's study of Davy as a dandy is the amount of *male* commentary upon Davy's physique and attractiveness, for example from Samuel Taylor Coleridge and John Davy (1790-1868), Humphry's younger brother. The one quote given by Golinski of female commentary on Davy's looks, "the ladies said, 'Those eyes were made for something besides poring over crucibles...'"¹⁷² as Golinski notes was a reminiscence made by Thomas Poole (1766-1837) of the ladies at the lectures almost three decades later, after Davy's death in 1829.¹⁷³ Thomas Poole's reminiscence about the ladies' admiration for Davy's eyes made it into later biographies of Davy, where it was often taken out of context. James Kendall embellished the quote and attributed it to the "ladies of London society," not to Poole, "'How rare his beauty! Those eyes were made for something more than poring into crucibles,' they [the ladies] sighed."¹⁷⁴ Raymond Lamont-Brown attributed the quote to a single unnamed lady, not Thomas Poole.¹⁷⁵ Anne Treneer also altered the quote and removed Poole as the source, "The ladies praised the lecturer's bright eyes and said they were meant for something other than pouring

¹⁷⁰ Serrano, "Chemistry in the city."

¹⁷¹ Margaret C. Jacob and Dorothee Strukenboom, "A Women's Scientific Society in the West: The Late Eighteenth Century Assimilation of Science," *Isis* 94 (2003): 217-252.

¹⁷² Golinski, *The Experimental Self*, 83.

¹⁷³ John Davy, *Memoirs of the Life of Sir Humphry Davy, Bart.* in two volumes (London, 1836), 1:136.

¹⁷⁴ James Kendall, *Humphry Davy: 'Pilot' of Penzance* (London: Faber and Faber 1954), on 64.

¹⁷⁵ Raymond Lamont-Brown, *Humphry Davy: Life Beyond the Lamp* (Stroud: Sutton Publishing Limited, 2004), on 55.

over crucibles.”¹⁷⁶ Poole’s reminiscence bares striking similarity to a passage of Mary Wollstonecraft Shelley’s (1797-1851) *Frankenstein* (1818), “But these philosophers, whose hands seem only made to dabble in dirt, and *their eyes to pore of the microscope or crucible*, have indeed performed miracles.”¹⁷⁷ *Frankenstein* had been published more than a decade before Poole was asked to reflect on Humphry Davy’s life.

Yet Davy’s looks have been given as the explanation for female attendance at his lectures. One review of the 2013 Royal Society exhibition “Romantic Chemistry” in *Nature* described the women in Gillray’s caricature *Scientific Researches!* (1802) as “craning eagerly towards the handsome scientist.”¹⁷⁸ Apparently, the gleam in Davy’s eye in the portrait by Thomas Lawrence (*Sir Humphry Davy, Bt.* 1821) “would have set his fans swooning.”¹⁷⁹ A glance at Gillray’s caricature (see Figure 1 above) will satisfy that the women are not “craning eagerly” towards Davy, who is not even lecturing and looking rather impish. While this exhibition review was not a piece of peer-reviewed scholarship, it is worth including as it was published in a prestigious scientific journal. Furthermore, this simplified image of the female audience resonates with comments I have received while presenting my research at academic conferences. Female attendance at the lectures gets over-simplified to an ahistorical “Brian Cox” effect.¹⁸⁰ John Ayrton Paris’s (bap. 1785, d. 1856) biography of Davy records that a young woman, whom he does not name but was apparently “well-known in the literary world,” wrote a poem to Davy “of considerable length, replete with delicate panegyric and genuine feeling.”¹⁸¹ The poem fits the form of the poetic tributes described by Johns-Putra – Davy was even given a watch chain to be worn at his next lecture, in the style of maidens who favoured their knights at tournaments with their glove or other such token. As Golinski argues, the abundance of comments concerning Davy’s appearance (more of which originated

¹⁷⁶ Anne Treneer, *The Mercurial Chemist: A Life of Sir Humphry Davy* (London: Methuen & Co. Ltd. 1963), on 86.

¹⁷⁷ Mary Wollstonecraft Shelley, *Frankenstein: or, the Modern Prometheus* (London, 1818), chapter 3, emphasis mine.

¹⁷⁸ Mark Peplow, “Elements of Romance,” *Nature* 493 (2013), 606.

¹⁷⁹ Peplow, “Elements of Romance,” 606.

¹⁸⁰ Peplow, “Elements of Romance,” 606.

¹⁸¹ John Ayrton Paris, *The Life of Sir Humphry Davy, Bart.* (London, 1831), on 90.

from male than from female quarters) was related to fears that Davy was being subordinated to female fashion. The attraction of Davy to his female audience, I argue, should also be historically grounded in his persona of the knight of Science, part of the cult of heroism of the Napoleonic Wars.

1.4 Overview of thesis

One striking result of this study is the sheer number of women – 844 in total – who subscribed to the Royal Institution from its foundation in 1799 until 10 April 1812, the date of Humphry Davy's last lecture. Among these are women who have been connected to the Royal Institution previously: Jane Marcet; Eleanor Anne Porden; Elizabeth, Lady Holland; Catherine Maria Fanshawe (1765-1834) and Jane, Lady Davy (olim Apreece, née Kerr, 1780-1855). Maria Edgeworth's connections to Humphry Davy are well known; she visited the Royal Institution as well as attending his lectures at the Dublin Society. There are also those women known to the history of science but not previously connected to the Royal Institution: Mary Somerville (olim Greig, née Fairfax, 1780-1872); Georgiana, Duchess of Devonshire (1757-1806);¹⁸² Elizabeth Ilive;¹⁸³ Anna Letitia Barbauld;¹⁸⁴ Julia Hankey¹⁸⁵ and Frederica Sebright.¹⁸⁶ It is worth commenting here upon the number of female writers who attended the Royal Institution: Edgeworth, Barbauld, Fanshawe, Marcet, Somerville, Porden and Amelia Opie (1769-1853). Finally, there are those women who have been written into the history of science through this thesis: Mary Mee, Viscountess Palmerston; Elizabeth Anne, Lady Hippisley; Margaret Bernard; Mary Ann Gilbert; Diana Beaumont; Maria Josepha, Lady Stanley (1771-1863); Louisa Dorothea Clinton (1776-1854) and Pleasance, Lady Smith (1773-1877).

¹⁸² Frank A. J. L. James, "The Subversive Humphry Davy: Aristocracy and Establishing Chemical Research Laboratories in Late Eighteenth- and Early Nineteenth-Century England" in Lisa Roberts and Simon Werrett (eds.) *Compound Histories: Materials, Governance and Production, 1760-1840* (Leiden: Brill, 2018): 269-88, on 273-5. Marelene Rayner-Canham and Geoff Rayner-Canham, "British women and chemistry from the 16th to the mid-19th century," *Bulletin of the History of Chemistry* 34 (2009): 117-123, on 118.

¹⁸³ McCann, "A private laboratory at Petworth House, Sussex, in the late eighteenth century."

¹⁸⁴ Anna Letitia Barbauld was a lifelong friend of Joseph Priestley's.

¹⁸⁵ Melvyn C. Usselman, *Pure Intelligence: The Life of William Hyde Wollaston* (Chicago and London: University of Chicago Press, 2015).

¹⁸⁶ G. Jeffery Leigh and Alan J. Rocke, "Women and Chemistry in Regency England: New Light on the Marcet Circle," *Ambix* 63 (2016): 28-45.

Included in the above lists are some of the big names of late-eighteenth century and early-nineteenth century British history, and they all had the Royal Institution in common. In stating that they all had the Royal Institution in common, I am not suggesting that all these women were involved with the Institution to the same degree, or that they all had the same level of interest in science. For most of the 844 women who subscribed to the Royal Institution during the period of study, the only information that could be collected was a name (often just a surname), title, address and date of subscription. We cannot expect the experiences of the twenty-one women listed above to be representative of the hundreds of women who subscribed to the Royal Institution. Yet meaningful conclusions from a large collection of small pieces of historical data can be drawn using the method of prosopography. A description of the method of prosopography and how it was used to inform the conclusions reached in this thesis is given in the following Chapter 2, "Methodology." The method has its limitations; in particular the influence of what is called the "dark number,"¹⁸⁷ which in this study is made up predominantly of the wives and daughters of Proprietors who were brought along to the lectures without being recorded in subscriber lists. Jane Marcet, for example, was not recorded on any subscriber list. Chapter 2 also describes the different types of subscriber groups at the Royal Institution and the sources used to build the prosopographical database (see Appendix). Women chose annual subscriptions over obtaining a life subscription or Proprietor share in most cases. By 1803 it was annual subscriptions, many of which came from women, not the purchase of Proprietors shares, which were the main source of income for the Royal Institution.

In order to better meet the needs of Annual Subscribers as opposed to Proprietors from 1803, the Managers decided to prioritise the lecture programme over other existing projects. Chapter 3, "A 'partly obscure reversal,'" returns to my criticism of Berman's insistence on the hegemony of those "improving landlords" who first joined the Royal Institution as Proprietors in 1799. Namely, what that group of "improving landlords" intended the Royal Institution to be, and what it became by

¹⁸⁷ Koenraad Verboven, Myriam Cralier and Jan Dumolyn, "Short Manual to the Art of Prosopography," in K.S.B. Keats-Rohan (ed.), *Prosopography Approaches and Applications: A Handbook* (Oxford: Prosopographica et Genealogica, 2007): 35-69, on 58.

1810, were two different things. From reading the Royal Institution's original *Prospectus* of 1800, one would guess that the aim of the Institution was to bring mechanics and manufacturers under the heel of the aristocracy. It was certainly read that way by the Boultons, one of Britain's most prominent manufacturing dynasties. This would be achieved through the School for Mechanics and the Model Room of manufactures respectively. The School for Mechanics was abandoned because of the political unease over the issue of educating workers following the French Revolution. Manufacturers knew they would gain nothing from allowing their inventions to be exhibited and then copied in the Model Room and so did not get involved. Both of these projects, the School for Mechanics and Model Room, were woefully unsuccessful in comparison to the success of the lecture programme that catered for upper class women.

To get women involved with the Royal Institution was not a primary aim of the Managers, and it was contingent on two important factors. The Royal Institution's first lecturer, Thomas Garnett, came from Anderson's Institution in Glasgow, whose founder had stipulated in his will that there would be lectures at his institution designed for the women of Glasgow. Garnett came to London having lectured to audiences containing a significant number of women in Glasgow, and he advised the Managers to encourage female attendance at the Royal Institution. Second, the Managers appointed distinguished patronesses to control female admission to the lectures. The two most active recommenders of women to the lectures were Viscountess Palmerston and Margaret Bernard. Both were involved in projects of scientific philanthropy prior to the Royal Institution's founding and were sympathetic to the aims of the Managers. Both had collaborated on these philanthropic projects with two men who were key figures in shaping the Royal Institution: Viscountess Palmerston had worked with Count Rumford, and Margaret Bernard had worked with her husband, Thomas Bernard (1750-1818). Through the example they set, in philanthropic projects and in encouraging female peers to attend an institution dedicated to "the common purposes of life," Viscountess Palmerston and Margaret Bernard led the way in efforts to transform the female aristocracy into a service élite.

Allowing women to be involved in the Royal Institution was almost an afterthought of the Managers, as is shown by the last-minute addition of two paragraphs in the *Prospectus* that implied female involvement. However, the distinguished patronesses, who were rulers of opinion, were able to make attending the lectures at the Royal Institution fashionable, as is argued in Chapter 4, “‘A very incongruous union:’ fashion and chemistry.” They assimilated the Royal Institution into the fashionable West-End “season.” The Managers had failed in their aims to get manufacturers and mechanics involved with the Royal Institution, but the distinguished patronesses had much more success. By 1803, more subscriptions were coming from the “Ladies and Young Persons” group than any other.

In the early-nineteenth century, fashion was seen as a form of female power, with fashionable women leading the nation by example, in dress but also in behaviour, taste in music, art and literature. Male commentators on the female audience of the Royal Institution, like Francis Horner, thought it was good for women to be involved in the Royal Institution, so that science would take a greater part in polite culture. However, fashion was also seen to have the capacity for social disruption: science at the fashionable Royal Institution was seen by critics as science under the corrupting influence of women. Francis Horner labelled the Royal Institution’s union of fashion and chemistry as “very incongruous” – it was against what he perceived as the natural order of things.¹⁸⁸ Henry Brougham went further, calling the science at the Royal Institution “degraded” in the *Edinburgh Review*.¹⁸⁹ To assuage the critics, lecturers including Humphry Davy demarcated between scientific and fashionable parts of their audience, a demarcation that was drawn along gender lines. However, this artificial separation belied the reality that fashionable women could also be chemists.

Having shown that the Royal Institution was assimilated into “the season,” Chapter 5, “Chivalrous Chemistry,” argues that the fashionable audience indeed had an influence on chemistry as Brougham feared. Davy’s lectures coincided with the war

¹⁸⁸ Horner, 31 March 1802, *Memoirs of Francis Horner*, 109.

¹⁸⁹ Brougham, Review of Thomas Young’s 1802 Bakerian Lecture “On the Theory of light and Colours,” 452.

with Napoleonic France, a war that saw unprecedented levels of female patriotism. Linda Colley has argued that men of the service élite were ostentatiously patriotic in this era, and I show that women in Davy's audience were likewise keen to prove themselves patriots. For upper class women, this patriotism manifested itself in a revival of chivalry, in answer to Edmund Burke's lament that the French Revolution had heralded the end of the age of chivalry. Burke's chivalry meant deference to rank and gallantry towards women. In allying chemistry with chivalry, Davy and his female audience directly met and countered Burke's association of chemistry with the French Revolution and social disruption. Chapter 5 thus gives the mechanism behind Golinski's account of the transformation of chemistry from radical to socially conservative at the Royal Institution – chemistry was made chivalrous.

Women who attended Davy's lectures wrote poetic tributes to the heroes of the battlefield and consumed the writings of Sir Walter Scott. In her chivalrous epic, *The Veils* (1815), Eleanor Anne Porden turned chemical elements, including Davy's latest discoveries, sodium and potassium, into gallant knights. Adeline Johns-Putra has argued that Eleanor Anne Porden saw Davy as a "knight of science" on a Baconian quest to explore nature.¹⁹⁰ Chapter 5 expands Johns-Putra's argument to show that Porden was not alone among the audience in reviving chivalry, and the influence of this revival of chivalry upon Davy himself. Davy, determined to mould himself upon the age in order to make the age mould itself upon him, cast himself in the role of knight of science in the lecture theatre. He would stage dramatic demonstrations in the lecture theatre, stressing the danger of what he was doing and even suggesting that his new discoveries, sodium and potassium, could be used as weapons of war. He set himself as a lone warrior against the hegemony of French chemistry, a message that was propagated by the newspaper press and periodicals. Davy became part of the cult of heroism of the service élite.

Chapter 6, "Royal Blue," places the Royal Institution within a longer history of female intellectualism and the anxieties it fuelled, by comparison with scholarship of the eighteenth century Bluestocking Circle. Both men and women at the Royal

¹⁹⁰ Johns-Putra, "Blending Science with Literature," 44.

Institution referred to themselves as “Bluestockings,” and were involved in Bluestocking-type activities as identified by scholars, including philanthropic projects, forging female literary networks and enjoying intellectual companionship with men. The small parties that followed the Royal Institution lectures were a continuation of the Bluestocking literary hostess tradition, which meant upper class women could make the reputations of intellectuals. The cessation of Bluestocking activities has tended to be dated to the end of the eighteenth century, following a conservative backlash against female intellectualism prompted by the French Revolution. While allowing that Bluestocking became more of a derogatory term in the nineteenth century, I argue that the Bluestockings were active for far longer into the nineteenth century than has been suggested.

Chapter 6 also contributes to existing scholarship on the Bluestockings by explaining the chemical turn of Bluestocking satire in the early-nineteenth century through the fame of the Royal Institution and its female audience. For Sylvia Harcstark Myers, Bluestocking was “a name around which associations with and feelings about intellectual women could cluster.”¹⁹¹ By 1811, those feelings clustered around the Royal Institution and the presence of fashionable women at its lectures. Like their Bluestocking predecessors, women at the Royal Institution were careful, as were the male service élite, to present themselves as morally impeccable, especially in comparison with the antics of the court of the Prince Regent. Taking an interest in useful science was deemed more favourable than other fashionable upper-class activities, such as gambling. Like the first Bluestockings, women at the Royal Institution challenged stereotypes of aristocratic behaviour, cultivating their “intellectual spark” as opposed to sinking into “sensual sloth,” in the words of Charlotte, Lady Bury (1775-1861).¹⁹² However, the influence they had as rulers of opinion caused resentment, particularly among male Romantics like Lord Byron (1788-1824) and Robert Southey. In order to check this influence, any display of knowledge by a woman began to be labelled as pedantry. Women like Jane Marcet

¹⁹¹ Myers, *The Bluestocking Circle*, 303.

¹⁹² Lady Charlotte Bury, 28 October 1811 (incorrectly dated by editor), quoted in *Diary Illustrative of the Times of George the Fourth, Interspersed with original letters from the late Queen Caroline, and other various distinguished persons* in two volumes (Paris, 1838; 3rd ed.), on 1:57.

and Maria Edgeworth negotiated the line between being a “ruler of opinion” and a “woman of display” more successfully than others.

I would not wish to argue, like Berman did of his “Society of Husbandry on Albemarle Street,” that the early history of the Royal Institution that follows, a story of distinguished patronesses, Bluestockings and chivalrous chemistry, is the defining history of the early years of the Royal Institution. As Amanda Vickery reminds us, “in every era alternative ‘ideologies’ are usually on offer.”¹⁹³ However, the gender balance in the historiography of the early years of the Royal Institution is in much need of redress.

¹⁹³ Vickery, “Golden Age to Separate Spheres?,” 390.

Chapter 2 Methodology

2.1 Introduction

When this project began, it first aimed to answer the question “Who was Humphry Davy’s audience at the Royal Institution, where he lectured as Professor of Chemistry from 1802 until 1812?” For the first decade of its existence, at a time when many of England’s scientific institutions were closed to women, the audience at the Royal Institution of Great Britain fluctuated between being a third, to a half, to perhaps even mostly, female. This chapter describes the methods used and sources consulted to arrive at this answer.

Methodologically, this work owes a debt to Rebekah Higgitt and Charles Withers’s study of women as audience at the British Association for the Advancement of Science (BAAS), and their focus on audience as opposed to lecturers or organisers.¹ Due to the Royal Institution’s extensive administrative records, this project has also been able to build on Higgitt and Withers’s method by additionally using prosopography. Prosopography is used to address how representative accounts of a handful of actors are of a whole group (an audience), a question raised by Higgitt and Withers’s study. One of the great strengths of prosopography is that it can unearth persons who were previously neglected in the history of science, Elizabeth Anne, Lady Hippisley and Viscountess Palmerston being prime examples.

The first section of this chapter justifies the choice of prosopography while also demonstrating its limitations. In Morris Berman’s influential prosopographical study of the Royal Institution, Berman gathered information on the Managers, Visitors and Proprietors of the Royal Institution, while leaving out the Annual and Life Subscribers.² Women overwhelmingly chose Annual Subscriptions; therefore very few women appear in Berman’s history of the Royal Institution. As Michael Hunter, in his study of the fellows of the Royal Society of London argued – institutional

¹ Higgitt and Withers, “Science and Sociability.”

² Berman, *Social change and scientific organization*.

histories should not attribute equal agency to all members of the institution.³ If Annual and Life Subscribers had little influence over the direction of the Royal Institution, their exclusion from Berman's study would be justified. However, as early as 1803 it was Annual Subscribers, not Proprietors, who brought in more income for the Royal Institution. Annual Subscribers continued to bring in more income, and acceptance of this in 1810 lent to the abolishment of Proprietors' shares at the Royal Institution through an Act of Parliament.

This chapter weighs evidence from the Royal Institution's administrative archives against the observations of those who attended the lectures. It is not possible to conclude from the *administrative archives* that the audience was mostly female. Before the Royal Institution stopped the Proprietorial system, the Managers counted up the total number of receipts from annual subscriptions from the Institution's foundation until 12 June 1809.⁴ In 1805, a year that saw a peak with 1,526 annual subscriptions, 593 receipts were made in that year alone for subscriptions costing one guinea – a rate that was only available to women.⁵ However, it is impossible to separate the other 933 Annual Subscriber receipts issued that year into male and female subscriptions. To further complicate matters, much of the information regarding female subscriptions is missing. Between 1802 and 1809, female subscribers recommended by the distinguished patronesses were not recorded in the Managers' Minutes whereas male subscriptions were. When women went to the lectures as wives or daughters of Proprietors, this attendance was also not recorded. These unrecorded female subscriptions form what is known in prosopography as the "dark number," and have the potential to skew the representativeness of the study.

Finally, this chapter charts the changing subscriber categories at the Royal Institution throughout the period 1799 until 1812. In particular, emphasis is placed on the Act of Parliament of 1810 that changed the Royal Institution into a

³ Michael Hunter, *The Royal Society and its Fellows 1600-1700: the morphology of an early scientific institution* (Oxford: Alden Press, BSHS Monographs, 1994; 2nd ed.), on 17.

⁴ RI Guard Book Volume 1, "Table A. Shewing the receipts of the Royal Institution from its commencement until 12 June 1809," on 57.

⁵ RI MM, 17 January 1803, 3:73.

Membership-based organisation. It is argued that this change marked the final acceptance by the Managers that they would have to risk offending the Institution's Proprietors in order to save it. The risk was softened to a great extent by the fact that Annual Subscribers, a group that contained many women, unlike the Proprietor group, were keeping the Royal Institution solvent by 1810. This gave the female audience agency over the future direction of the fledgling institution.

2.2 Prosopography

As noted above, in taking the audience, as opposed to the lecturer or organisers, as the primary focus, this work follows that of Higgitt and Withers, who studied the female audience at BAAS meetings during the nineteenth century. Rather than using only the papers of lecturers and meeting organisers, Higgitt and Withers used press and periodical commentary on the female audience at the BAAS alongside the commentary made by eleven female audience members in correspondence, diaries and reminiscences.⁶ They raised an issue in the study of audiences, namely the representativeness of a handful of accounts for a whole audience.⁷ This was the major limitation of Higgitt and Withers's study, which necessarily drew on the evidence that was available. The same question of representativeness can be applied to this study. Contemporary commentators reported attendance of 300 to 800 people at Humphry Davy's lectures over the period 1801-1812.⁸ This study has identified 844 women who subscribed to the Royal Institution from 1799 until 1812 who were eligible to attend those lectures (see Appendix). Yet this study only draws in detail upon the experiences of twenty-one female audience members. For the majority of actors in the Royal Institution audience, all that is left in the archival records is a name, title and address.

The question of representativeness is answered in two ways. First, emphasis is placed on the role and interests of the Royal Institution's distinguished patronesses. In his study of the Fellows of the Royal Society from 1660 until 1700, Michael

⁶ Higgitt and Withers, "Science and Sociability," 2.

⁷ Higgitt and Withers, "Science and Sociability," 3.

⁸ Humphry Davy to Davies Giddy, quoted in Paris, *The Life of Sir Humphry Davy*, 95; Horner, 31 March 1802, *Memoirs of Francis Horner*, 109-110; Anonymous, "Advertisement," *Liverpool Mercury*, 9 August 1811, 47c.

Hunter cautioned that historians should seek to distinguish between the more and less active members of scientific institutions.⁹ For this reason, this thesis places particular emphasis on the distinguished patronesses who were active in recruiting other women to the Royal Institution lectures, the most active of whom were Viscountess Palmerston and Margaret Bernard. There were no women equivalent to the distinguished patronesses at the BAAS meetings. A further tactic, not used by Higgitt and Withers, is to use prosopography to understand how typical an individual actor is of the whole audience.¹⁰

Prosopography was developed as a method of studying historical groups when faced with a paucity of evidence, and is often associated with scholars of Ancient Roman history.¹¹ It is a way to draw meaningful conclusions from a large collection of small pieces of historical data, such as a collection of addresses. In the “Short Manual to the Art of Prosopography,” Koenraad Verboven, Myriam Cralier and Jan Dumolyn define the prosopographical method as:

A system for organising mostly scarce data in such a way that they acquire additional significance by revealing connections and patterns influencing historical processes.¹²

Prosopography brings to light commonalities between audience members by collecting small pieces of evidence that in isolation have little meaning. Shared addresses reveal social networks. Titles can reveal dominant social statuses or professions within a group of actors.

⁹ Hunter, *The Royal Society and its Fellows 1600-1700*, 17.

¹⁰ Putting together a paper for the tenth International Conference on the History of Chemistry, “Chemical Biography in the Twenty-first century,” held at the University of Aveiro in September 2015, first introduced me to prosopography. Participation in a panel, “Prosopography and the history of science in a networked computational Environment: theoretical, methodological, and technical considerations,” a year later at the seventh European Society for the History of Science conference, hosted by Charles University, provided another forum in which to explore the benefits and limits to prosopography. I would like to thank participants at both conferences for those stimulating discussions.

¹¹ Verboven, Cralier and Dumolyn, “Short Manual to the Art of Prosopography,” 36. Timothy D. Barnes, “Prosopography modern and ancient,” in K.S.B. Keats-Rohan (ed.) *Prosopography Approaches and Applications: A Handbook* (Oxford: Prosopographica et Genealogica, 2007): 71-82.

¹² Verboven, Cralier and Dumolyn, “Short Manual to the Art of Prosopography,” 37.

Steven Shapin and Arnold Thackray were the first to suggest that historians of science should use prosopographical methods as an antidote to presentism,¹³ describing prosopography as “highly promising” but “insufficiently exploited” in 1974.¹⁴ They identified Britain’s period of industrialisation and urbanisation, roughly spanning from 1700 to 1900, a period within which this study falls, as a particularly fruitful period in which to employ prosopographical methods.¹⁵ Following Shapin and Thackray’s recommendation, historians of science and technology have used prosopography to their advantage. Carolyn Dougherty examined the engineering networks of George Stephenson (1781-1848) in the nineteenth century using prosopography, and found that all of her actors were connected to just three men by one degree of separation.¹⁶ Giuliano Pancaldi used prosopography to make a “collective portrait” of 74 men of science from the Italian peninsular in Alessandro Volta’s (1745-1827) era.¹⁷ Pancaldi demonstrated that the group were drawn from the professional classes (mainly lawyers and physicians) and the lesser nobility.¹⁸ A prosopographical study of the pupils of Jean-Baptiste Lamarck (1744-1829), at the courses he gave at the Muséum National D’Histoire Naturelle in Paris from 1795 until 1823, was published in French.¹⁹ In that study, Raphaël Bange was able to ascertain that the sons of provincial elites sent to Paris to complete their education were the average auditors at Lamarck’s courses.

Prosopography has been used in previous studies of the Royal Institution: in Morris Berman’s study of the Managers, Visitors²⁰ and Proprietors in the Royal Institution’s first decade, as discussed in the previous chapter; and in Sophie Forgan’s study of

¹³ Steven Shapin and Arnold Thackray, “Prosopography as a research tool in history of science: The British scientific community, 1700-1900,” *History of Science* 12 (1974): 1-28, on 3-4.

¹⁴ Shapin and Thackray, “Prosopography as a research tool in history of science,” 21.

¹⁵ Shapin and Thackray, “Prosopography as a research tool in history of science,” 4.

¹⁶ Carolyn Dougherty, “George Stephenson and Nineteenth-Century Engineering Networks,” in K.S.B. Keats-Rohan (ed.) *Prosopography Approaches and Applications: A Handbook* (Oxford: Prosopographica et Genealogica, 2007): 555-565.

¹⁷ Giuliano Pancaldi, *Volta: Science and Culture in the Age of Enlightenment* (Princeton and Oxford: Princeton University Press, 2003), on 53.

¹⁸ Pancaldi, *Volta*, 57.

¹⁹ Raphaël Bange, “Base de données pour une étude prosopographique: les auditeurs du cours de Lamarck au Muséum National D’Histoire Naturelle (1795-1823),” *Annales Historiques de la Révolution Française* (Avril/Juin 2000): 205-211.

²⁰ A committee of nine Visitors fulfilled an audit-type role at the Royal Institution. They were charged with writing an annual report on the state of the Institution. Those reports can be seen in the Royal Institution Archives, in Guard Book Volume 1.

the management and membership of the Royal Institution from 1840 until 1873.²¹ Forgan's study found that in the mid-nineteenth century, the members of the Royal Institution were mostly drawn from the professional bodies of law and medicine, leading her to conclude "The usually accepted image of the R.I. [Royal Institution] as a predominantly aristocratic society proves to be a misleading one."²² This is an accurate image of the Royal Institution in the early-nineteenth century, however. It is also worth noting that, according to Forgan, women made up 0.6% of members in 1840, which increased to 5.1% of members in 1870.²³ Yet in the Royal Institution's first decade, the audience may have even on occasion been mostly female. An increasingly professionalised membership at the Royal Institution thus appears to have caused a drop in female attendance. This would agree with arguments that increasing professionalisation led to women being excluded from the sciences in the nineteenth century.²⁴ However, Forgan dismissed those who paid to attend lectures only, as opposed to Members who she characterised as "loyal supporters" of the Royal Institution.²⁵ In the early-nineteenth century, women had favoured subscriptions to lectures only, as will be shown below. The types of subscriptions favoured by women were excluded from both Forgan's and Berman's prosopographical studies, thus making a lack of female engagement with the Royal Institution a foregone conclusion.

The first step in a prosopographical study is to determine and define the group of actors to be analysed.²⁶ In this case, it is those women who subscribed to the Royal Institution between 7 March 1799, when the Royal Institution was founded, and 10 April 1812, the date of Humphry Davy's last lecture at the Royal Institution. At this point, a couple of caveats need to be introduced. First, registers were not taken at the lectures. A subscription to the Royal Institution therefore does not guarantee

²¹ Sophie Forgan, *The Royal Institution of Great Britain, 1840-1873* (Westfield College PhD thesis, 1976).

²² Forgan, *The Royal Institution of Great Britain, 1840-1873*, 87.

²³ Forgan, *The Royal Institution of Great Britain, 1840-1873*, 90.

²⁴ Londa Schiebinger, *The Mind Has No Sex? Women in the Origins of Modern Science* (London and Cambridge, Massachusetts: Harvard University Press, 1989), on 245 and Ann B. Shteir, *Cultivating Women, Cultivating Science: Flora's Daughters and Botany in England 1760 to 1860* (Baltimore and London: Johns Hopkins University Press, 1996), 235.

²⁵ Forgan, *The Royal Institution of Great Britain, 1840-1873*, 85.

²⁶ Verboven, Cralier and Dumolyn, *Short manual to the art of prosopography*, 48.

that a woman went frequently or even at all to the lectures. Second, it should be emphasised that Davy's were not the only lectures on offer at the Royal Institution: from 1804 there was a huge expansion in lectures that covered subjects outside of the sciences. While Louis Simond reported in 1810 that "the amphitheatre never fills, but for Mr Davy,"²⁷ Reverend Thomas Frognall Dibdin maintained that the Reverend Sydney Smith (1771-1845), who gave a lecture course on moral philosophy in 1805 and 1806, had audiences that "equalled, both in number of auditors and warmth of applause" those of Davy.²⁸ Dibdin himself lectured on English literature to an audience of "some five hundred ladies and gentleman" at the Royal Institution in 1806.²⁹ Subscriptions to the Royal Institution do not simply equate to attendance of Davy's lectures.

The next step in the prosopographical study is to subject the group of actors, in this case the Royal Institution's female audience, to a "questionnaire," and as far as possible collect the same biographical information.³⁰ In this study, the questionnaire asks name, title, address (if given), who recommended the actor to the lectures (if given) and the sources where the information is recorded. A prosopographical study is only possible because a fairly meticulous record of the Royal Institution's subscribers was kept during this period, with some important exceptions. The Minutes of the Royal Institution Managers' meetings provided a large part of the prosopographical data, as proposed Proprietors and Subscribers had to be announced at Managers' meetings (although, importantly, this would change for female subscribers from 1802). When actors were successful in subscribing to the Royal Institution, they were listed in the Managers' Minutes (Figure 2). The name, title and often (but not always) the address of the subscriber were recorded in the minutes, sometimes with the name of an actor who had recommended them to the Royal Institution. It was common for female subscribers to be listed with their surname only. Information for this study was collected in this way for the hundreds of subscribers and Proprietors.

²⁷ Simond, 24 January 1810, *Journal of a tour and residence in Great Britain*, 1:43.

²⁸ Thomas Frognall Dibdin, *Reminiscences of a Literary Life*, in two volumes (London, 1836), on 1:228.

²⁹ Dibdin, *Reminiscences*, 1:235. Dibdin gave two courses on English Literature at the Royal Institution, in the lecture season that ran from November 1806 until April 1807 and in 1808.

³⁰ Verboven, Cralier and Dumolyn, *Short manual to the art of prosopography*, 21.

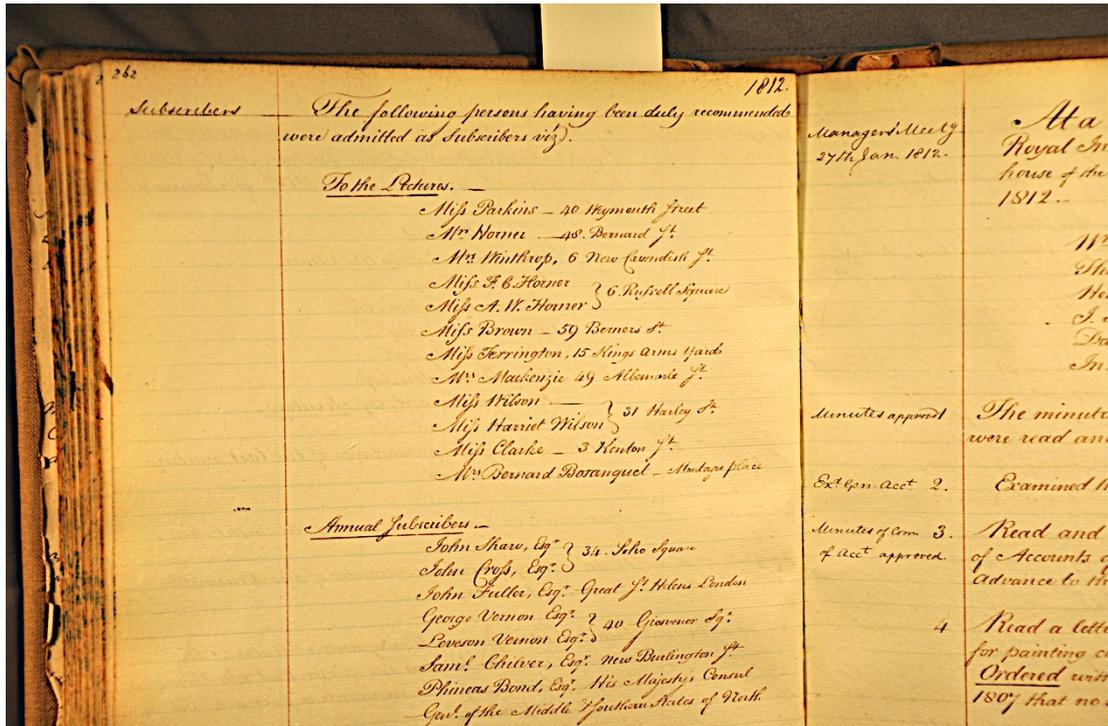


Figure 2: The Managers' Minutes, 20 January 1812, RI MS AD/02/B/02/A05, on 262, by courtesy of the Royal Institution.

One important advantage of the prosopographical method is that it allows new actors to be written into the history of science. For Michael Hunter, his statistical method provided a remedy for institutional histories of the Royal Society of London that overemphasised the role of “great men” of science while overlooking the work of “non-scientists” in the Society.³¹ Prosopography allows us *not* “to start with names known to us through their science,”³² and instead actors not previously known for their science, such as Viscountess Palmerston and Lady Hippisley are brought to the foreground. Higgitt and Withers’s method of focussing on the diaries, letters and reminiscences of audience members was then applied to the actors unearthed by prosopography.

2.3 Subscribing to the Royal Institution

How did the audience get tickets to the Royal Institution lectures? The main subscriber categories until 1810 were Proprietor, Life Subscriber and Annual Subscriber (see Table 1). All of the three subscriber categories were open to

³¹ Hunter, *The Royal Society and its Fellows 1600-1700*, 5.

³² Shapin and Thackray, “Prosopography as a research tool in history of science,” 14.

women,³³ and there were also reduced annual subscription rates, including rates that allowed women to access the lectures only and men to access the chemistry and natural philosophy lectures only. Proprietors, Life and Annual Subscribers could access more than the lectures at the Royal Institution. They could also visit the Model Room, which was intended to house “mechanical inventions and improvements,”³⁴ but had proved hard to fill and was described as “imperfect” in 1809.³⁵ Subscribers and Proprietors could inspect Rumford’s kitchen, designed “for reducing the humble processes of the kitchen to philosophical principles,”³⁶ full of scientifically improved saucepans and roasters but defunct by 1810.³⁷ The Reading Rooms, which contained journals and newspapers, both British and foreign, were accessible to Proprietors and Subscribers. In later years, Proprietors and Subscribers could also attend the “public experiments,” use the Library and access the mineralogical collection.³⁸

³³ RI MM, 23 March 1799, 1:9; RI MM, 13 January 1800, 1:86; and RI MM, 27 November 1809, 4:495.

³⁴ RI MM, 27 January 1800, 1:92.

³⁵ RI MM, 27 November 1809, 4:495.

³⁶ Silliman, 11 July 1805, *A Journal of Travels in England*, 1:250.

³⁷ Simond, 24 January 1810, *Journal of a Tour and Residence in Great Britain*, 1:41-42.

³⁸ RI MM, 27 November 1809, 4:495.

Table 1: Subscriber Categories at the Royal Institution, 1799-1812, with a comparison of rates and privileges. Unless otherwise indicated, the Subscriber category is open to both men and women.

Subscriber Categories at the Royal Institution, 1799-1812			
	Cost	Introduced	Privileges
Proprietor	50-200 guineas ³⁹	1799 until 1810	Access to lectures, public experiments, mineralogical collection, library, Model Room and reading rooms. Hereditary and saleable shares. Can bring wife or unmarried daughter to lectures for one guinea. Two transferrable tickets that grant bearer admission to lectures. Proprietors also had some say in the management of the institution – they could elect Managers and Visitors from a short list compiled by the Managers and could suggest other candidates if necessary. ⁴⁰
Life	10-30 guineas ⁴¹	1799	Access to lectures, public experiments, mineralogical collection, library, Model Room and reading rooms.
Annual	2-4 guineas ⁴²	1799	For one year only. Access to lectures, public experiments, mineralogical collection, library, Model Room and reading rooms.
Ladies	1-2 guineas ⁴³	1803	An Annual Subscription for women only . Access to lectures, public experiments and mineralogical collection.
Chemical	2 guineas ⁴⁴	1809	An Annual Subscription. Access to chemistry and natural philosophy lectures only, public experiments and mineralogical collection. Restricted to medical students only on 16 December 1811. ⁴⁵
Plus one	1 guinea ⁴⁶	1805 and still a category in 1812	Only available to wives or daughters of Proprietors (women only). An Annual Subscription. Access to lectures and public experiments.

³⁹ RI MM, 3 February 1800, 1:105-106; and *The Charter and Bye-Laws of the Royal Institution of Great Britain; together with a list of the Proprietors and Subscribers* (London, 1806), page 26, from copy held at the British Library, tracts 676.

⁴⁰ See "Appendix D" in *The Charter and Bye-Laws of the Royal Institution of Great Britain; together with a list of the Proprietors and Life Subscribers* (London, 1807), page 54, copy held at the British Library, tracts 676.

⁴¹ RI MM, 7 March 1803, 3:94 and RI MM, 27 November 1809, 4:495.

⁴² See "Appendix" in *Prospectus of the Royal Institution of Great Britain, incorporated by Charter MDCCC* (London, 1800), page 34, from copy held at the British Library, tracts 727 and RI MM, 4 February 1805, 4:21.

⁴³ RI MM, 17 January 1803, 3:73 and RI MM, 4 February 1805, 4:21.

⁴⁴ RI MM, 27 November 1809, 4:495.

⁴⁵ RI MM, 16 December 1811, 5:251.

⁴⁶ RI MM, 28 January 1805, 4:17.

The most expensive route to the lectures was to become a Proprietor. Proprietors were crucial in raising the initial funds needed to start the Royal Institution, not least including the purchase of the house on Albemarle Street at a cost of £4,850.⁴⁷ To become a Proprietor cost the substantial sum of 50 guineas in 1799, which increased fourfold by 1806 to 200 guineas. Proprietors had to be proposed at Managers' meetings and would be elected at the following Managers' meeting. An initial attempt to subject the election of a Proprietor to ballot by the Managers was rescinded two weeks after it was proposed – thus the recommendation of one Manager guaranteed election to proprietorship.⁴⁸

The categories of Life Subscriber and Annual Subscriber were introduced on 23 March 1799.⁴⁹ As the names suggest, a Life Subscriber could enjoy the Royal Institution for life, whereas an Annual Subscriber had the same privileges but only for a year – this was reflected in the relative costs of both subscriptions. Like Proprietors, men who wanted to become a Life or Annual Subscriber needed to have their name proposed at one Managers' meeting and were then elected (again without ballot) at the next. Unlike Proprietors, Managers' names were not recorded alongside Annual or Life Subscriber proposals. To become an Annual or Life Subscriber only required the recommendation of another Proprietor or Subscriber (as opposed to a Manager) at one Managers' meeting to be elected at the next.

Despite the Royal Institution being open to female subscribers 16 days after it was founded,⁵⁰ no women subscribed for almost a year. It was only after distinguished patronesses were appointed that women began to subscribe to the lectures. At first, it was planned that women should take the same subscription route as men – they had to be recommended by a Manager at a Managers' Meeting.⁵¹ Then, on 10 February 1800, nineteen women, fifteen of whom bore aristocratic or hereditary

⁴⁷ Frank A. J. L. James and Anthony Peers, "Constructing Space for Science at the Royal Institution of Great Britain," *Physics in Perspective* 9 (2007): 130-185, on 180.

⁴⁸ RI MM, 9 March 1799, 1:3 and 23 March 1799, 1:6.

⁴⁹ RI MM, 23 March 1799, 1:7.

⁵⁰ RI MM, 23 March 1799, 1:9.

⁵¹ RI MM, 13 January 1800, 1:86.

titles, were proposed en masse as Annual Subscribers.⁵² A week later they were all elected.⁵³

Contrary to the rules for subscription, no record was given of who proposed these nineteen high-society women, although a number of them were closely related to the Managers or Visitors. For example, Countess Spencer and Henrietta Frances Ponsonby (1761-1821), Countess of Bessborough, were the wife and sister respectively of George John Spencer (1758-1834), second Earl Spencer and Royal Institution Manager. Viscountess Palmerston, was the second wife of the Royal Institution Visitor Henry Temple, second Viscount Palmerston (1739-1802). Charlotte Cornish (d. 1834), the Right Honourable Lady Teignmouth, was the wife of Royal Institution Visitor, John Shore, first Baron Teignmouth (1751–1834). Mrs Sullivan was the wife of Royal Institution Manager, Richard Joseph Sullivan. Margaret Bernard was the wife of the then Treasurer, and later influential Manager, Thomas Bernard.

The Managers then took the step of approaching seven of the women they had elected as Annual Subscribers and Georgiana Cavendish (née Spencer, 1757-1806), the Duchess of Devonshire, another sister of Manager Earl Spencer. The Duchess had not been elected Annual Subscriber but was a social leviathan. The Managers requested these women “to suffer books to be sent to them for the admission of the names of such Ladies, as may wish to become Proprietors or Subscribers to the Royal Institution.”⁵⁴ These eight women were the Royal Institution’s first distinguished patronesses.

Rather than being proposed by a Royal Institution Manager, women could be recommended to the Royal Institution by a distinguished patroness. Thus women had control over the admission of other women to a scientific institution and in this respect the Royal Institution was unique. Anderson’s Institution in Glasgow, although an important model for the Royal Institution with regards to setting a precedent for a female audience for science, had not appointed distinguished

⁵² RI MM, 10 February 1800, 1:120.

⁵³ RI MM, 17 February 1800, 1:129.

⁵⁴ RI MM, 17 February 1800, 1:130.

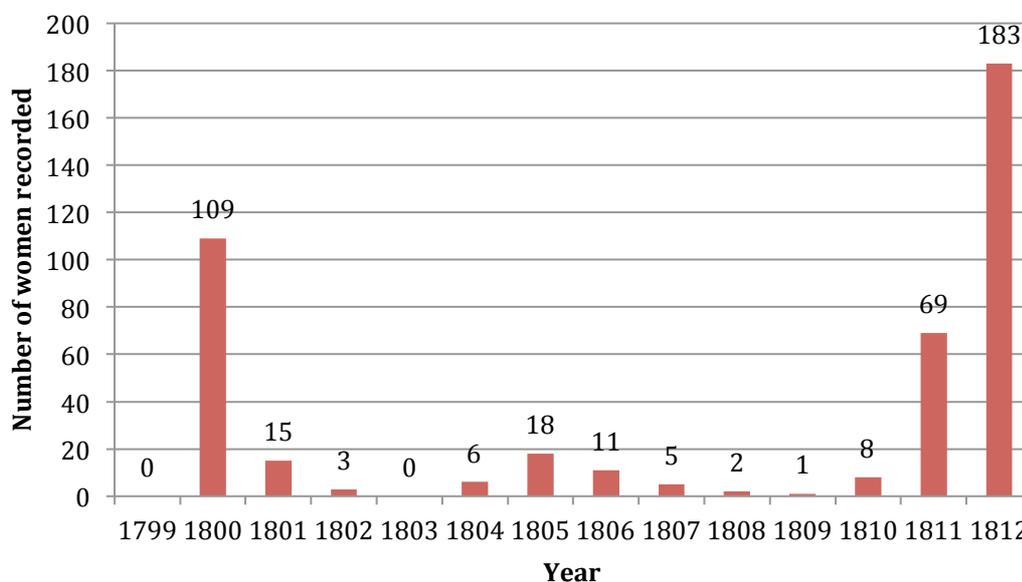
patronesses. Indeed, later institutions that were modelled on the Royal Institution – the London Institution, the Cork Institution, the Surrey Institution and the Liverpool Institution – did not appoint distinguished patronesses.

Female subscriptions began to accumulate in the Managers' Minutes from February 1800. However, by 1802 women's names vanished from the Managers' Minutes. From 1802 until 1809, women only appeared in the Managers' Minutes in exceptional circumstances: if they had lost a ticket, had been given a transferable ticket or had inherited a Proprietor's share (see Graph 1). As a new establishment, the Royal Institution had a reputation to build. Michael Gordin has shown how the administration of the St. Petersburg Academy of Sciences stopped printing its Minutes from October 1728 until September 1730 to avoid a heated dispute between two academicians reaching the ears of outsiders.⁵⁵ At the Royal Institution, the Managers had to navigate a sensitive political climate where revolution had been linked with attempts to make knowledge more inclusive. This was reflected in the Managers' Minutes; for example, the Managers' reaction to Thomas Webster's (1773-1844) proposed School for Mechanics at the Royal Institution was not recorded in the Managers' Minutes.⁵⁶

⁵⁵ Michael D. Gordin, "The Importation of Being Earnest: The Early St. Petersburg Academy of Sciences" *Isis* 91 (2000): 1-31, on 26.

⁵⁶ See Chapter 3, "A 'partly obscure reversal,'" 105-106.

Number of female subscribers to the Royal Institution recorded in the administrative archives, 1799-1812



Graph 1: Number of female subscribers to the Royal Institution recorded in the administrative archives, 1799-1812. Data collected from the Managers' Minutes and the *Ledger of Receipts for the Year 1812*, RI MS AD/04/A/03.

In omitting the women admitted by the distinguished patronesses from the Managers' Minutes (similar to the way they omitted their opinion of Webster's School for Mechanics), the Managers of the Royal Institution were perhaps playing down the scale of women's involvement at the Royal Institution to avoid being accused of upsetting the social order. Francis Horner remarked in a journal entry for 31 March 1802 (an entry later selected for publication by his brother) that the Royal Institution's combination of women and chemistry was unnatural.⁵⁷ Indeed, female presence at the lectures was criticised in a couple of publications of 1802 and 1803, the same time that women disappeared from the Managers' Minutes; though I do not suggest that these publications prompted the omission of women recommended by the distinguished patronesses from the Minutes, rather that they show the possibility of women influencing a scientific institution as being seen by

⁵⁷ Horner, 31 March 1802, *Memoirs of Francis Horner*, 109.

some at the time as undesirable. On 23 May 1802, James Gillray published his caricature of a lecture that made the Royal Institution look silly by the use of toilet humour, with the women in Gillray's cartoon either gawping or looking ridiculously studious (see Chapter 1, Figure 1). In the *Edinburgh Review* in January 1803, Henry Brougham attacked the Royal Institution's Professor of Natural Philosophy, Thomas Young, and linked female attendance at the Royal Institution lectures to a degraded science.⁵⁸

The almost complete absence of women in the Managers' Minutes from 1802 until 1809 has important consequences for the prosopographical study, as the bulk of the audience data for male and female actors has been drawn from the Managers' Minutes. How representative a prosopographical study is of the group of actors studied can be compromised by what is called "the dark number" – an unknown number of actors that are missing from the historical record, a number that can skew how well the available data represents the group of actors being described.⁵⁹ Actors with less privilege, whether through race, class, or gender, are underrepresented in the historical record, and this skews the representativeness of a prosopographical study. The dark number refers to the data that is lacking – including all of the women who subscribed through the distinguished patronesses to the Royal Institution from 1802 until 1809 that were not recorded in the Managers' Minutes.

However, the Managers' Minutes are only the second most populous source for women who subscribed to the lectures. Most of the women in this study (496 out of 844) are found in a list of female subscribers to the lectures in 1805, published in 1806 by the Royal Institution along with its Charter, Bye-Laws and lists of male subscribers.⁶⁰ This practice of publishing annual lists of members was likely inherited from the Royal Society of London.⁶¹ The list of 496 female subscribers to

⁵⁸ Brougham, Review of Thomas Young's 1802 Bakerian Lecture "On the Theory of light and Colours," 452.

⁵⁹ Verboven, Cralier and Dumolyn, *Short manual to the art of prosopography*, 58.

⁶⁰ *The Charter and Bye-Laws of the Royal Institution of Great Britain; together with a list of the Proprietors and Subscribers* (London, 1806), from copy held at the British Library, tracts 676. Hereafter referred to as *Subscribers 1805*.

⁶¹ Hunter, *The Royal Society and its Fellows 1600-1700*, 8.

the lecture seasons in 1805 stands in stark contrast to the eighteen female subscribers recorded in the Managers' Minutes in the year 1805 (see Graph 1). The list of female subscribers from the 1805 season appears to be a one-off exception: the 496 women were inserted into the list at a later date, and for the next season only Proprietors and Life Subscribers (very few of whom were women) were published in the lists.⁶²

To an extent, the administrative archives at the Royal Institution hint at the size of this dark number. For example, when women did appear in the Managers' Minutes because they had lost their ticket to the lectures, their names can be cross-referenced against earlier records of female subscriptions from 1800 and 1801. In all eighteen cases where a lost female ticket was recorded in the Managers' Minutes, none of the women had been recorded in the Managers' Minutes previously.

A further source from the administrative archives that hints at the possible size of the dark number is the *Ledger of Receipts for the Year 1812*.⁶³ Nearly one hundred (ninety-seven to be exact) of the female subscribers for the year 1812 are marked as "old subscribers" – they had subscribed to the Royal Institution in a previous lecture season. Of these ninety-seven women, only nineteen had been recorded in the Managers' Minutes previously. Thus, by 1812, at least seventy-eight women were considered as "old subscribers" despite there being no record in the Managers' Minutes of when they had first been admitted to the Royal Institution. Four-fifths of the female "old subscribers" in 1812 had left no previous trace in the Managers' Minutes – what about the women who had stopped subscribing by 1812? A conservative estimate would place the dark number at over one hundred.

Recourse to the accounts of those actors who left deeper traces in the historical record is one more way to illustrate the existence of a dark number. Mary Ann Gilbert is only found in the administrative archives of the Royal Institution in 1811

⁶² The Managers ordered that 2250 copies of these lists be printed and sent to all of the Institution's Proprietors and Subscribers, see RI MM, 29 April 1805, 4:65.

⁶³ *The Ledger of Receipts for the Year 1812* is part of the administrative archives of the Royal Institution of Great Britain, RI MS AD/04/A/03, Vol. 1 1812, cited hereafter as RI *Ledger of Receipts 1812*, followed by volume and page number.

and 1812,⁶⁴ yet she wrote that she was regularly attending the Royal Institution lectures in 1804 and 1805.⁶⁵ The journal kept by Gilbert records her bumping into Reverend Mr Wiggan,⁶⁶ “a respectable man who we generally meet at the Royal Institution lectures,” while visiting her friends Mr and Mrs Ward at Marshgate near Richmond on 12 June 1804.⁶⁷ The poet Catherine Fanshawe was not recorded in the Managers’ Minutes at all, yet she wrote an ode to her friend and fellow writer Mary Berry⁶⁸ (1763-1852) after they had attended one of Sydney Smith’s moral philosophy lectures together in 1805.⁶⁹ Another poet, Eleanor Anne Porden, had attended the Royal Institution “constantly” since 1805,⁷⁰ but the administrative records only show her attendance from 1812.⁷¹ Gilbert, Fanshawe and Porden were listed in the *Ledger of Receipts for the Year 1812* as old subscribers. Gilbert was listed in the published list of female subscribers for the 1805 season,⁷² Fanshawe and Porden were not, but there is evidence that they too attended the lectures that season. This begs the question of how many women who subscribed to the lectures between the years 1802 and 1809, but had ceased attending lectures by 1810, have been left out of the prosopographical study?

Although not listed in the administrative records of the Royal Institution, the poet Anna Letitia Barbauld attended lectures at the Royal Institution in 1800.⁷³ According to the administrative records, Lady Maria Josepha Stanley became a subscriber on 22 April 1811,⁷⁴ yet Stanley had attended Davy’s lectures earlier in 1809.⁷⁵ Stanley’s

⁶⁴ RI MM, 4 March 1811, 5:195 and RI *Ledger of Receipts 1812*, 1:13.

⁶⁵ Mary Ann Gilbert, 12 June 1804 and 15 January 1805, *Journal kept by Mary Ann Gilbert mainly while in Sussex, London and Kent, November 1803 - September 1804*, EN/1917.

⁶⁶ John Wiggan, Esq. became a proprietor of the Royal Institution on the recommendation of Sir Joseph Banks on 20 April 1799, see RI MM, 20 April 1799, 1:25.

⁶⁷ Mary Ann Gilbert, 12 June 1804, *Journal kept by Mary Ann Gilbert mainly while in Sussex, London and Kent, November 1803 - September 1804*, EN/1917.

⁶⁸ Berry was one of the earliest female subscribers to the Royal Institution and was recommended by the Duchess of Devonshire, see RI MM, 19 March 1800, 2:26.

⁶⁹ Catherine Maria Fanshawe, “Ode, by Miss Berry,” May 1805, quoted in Lady Theresa Lewis (ed.) *Extracts of the Journals and Correspondence of Miss Berry*, in three volumes (London, 1865), 2:299.

⁷⁰ Eleanor Anne Porden to John Franklin, 4 June 1823, D3311/8/3/19.

⁷¹ RI *Ledger of Receipts 1812*, 1:12.

⁷² *Subscribers 1805*, 116.

⁷³ Anna Letitia Barbauld to Mrs Kenrick, [undated] 1800, *A Memoir of Mrs Anna Lætitia Barbauld*, 1:226.

⁷⁴ RI MM, 22 April 1811, 5:211.

sister, Louisa Dorothea Clinton, provides yet another hint at the dark number in this prosopographical study. Clinton is not recorded in the administrative archives because she borrowed Manager Thomas Pelham's (1728-1805, first Earl of Chichester) ticket for the entire lecture season in 1800.⁷⁶

Proprietors could also bring along their wife or unmarried daughter at the reduced cost of one guinea.⁷⁷ This "plus-one" route was cheaper than the "distinguished patronesses" route (which was raised to two guineas in February 1805) but required the co-operation of a husband or father. Women who got tickets to the lectures from husbands or fathers tended not to be recorded in the administrative system, and also form part of the dark number that skews this prosopographical study. For example Jane Marcet, who stated that she had attended Davy's lectures in the preface to her *Conversations on Chemistry* (1806), was not recorded in the Managers' Minutes, or in any of the other administrative records of the Royal Institution – but both her husband and father were recorded.⁷⁸

Pleasance, Lady Smith,⁷⁹ the wife of the botanist Sir James Edward Smith (1759-1828),⁸⁰ recorded her attendance at her husband's and other lecture courses in the spring of 1804 in her diary.⁸¹ Yet Pleasance Smith was not recorded in the Managers' Minutes. As the wife of a Royal Institution lecturer, Pleasance Smith likely attended the Royal Institution lectures for free. Reverend John Hewlett (1762-1844) was given life subscriptions for him and his wife in exchange for a lecture

⁷⁵ Maria Josepha Stanley to Louisa Dorothea Clinton, 9 March 1809, quoted in Jane H. Adeane (ed.) *The Early Married Life of Maria Josepha Stanley* (London, New York and Bombay: Longmans, 1899), 314. With thanks to Sharon Ruston for alerting me to this text.

⁷⁶ Louisa Dorothea Clinton to Maria Josepha Stanley, April 1800, *The Early Married Life of Maria Josepha Stanley*, 189 and 196.

⁷⁷ RI MM, 18 November 1805, 4:111; RI MM, 18 February 1811, 5:188; and Ackermann, *The Microcosm of London*, 3:35.

⁷⁸ Jane Marcet, *Conversations on Chemistry, in which the elements of that science are familiarly explained and illustrated by experiments*, in two volumes (London, 1806), 1:vi. Her husband, Alexander Marcet, became a proprietor on 6 April 1801, and her father, Anthony Francis Haldimand, became an Annual Subscriber on 31 December 1804, see RI MM, 6 April 1801, 2:159 and 31 December 1804, 3:365.

⁷⁹ Two diaries kept by Pleasance, Lady Smith in 1804 and 1843 are part of the collection of the Suffolk Record Office in Lowestoft, hereafter SRO.

⁸⁰ Sir James Edward Smith was knighted 1814. He lectured on botany at the Royal Institution every season (excepting 1811) from 1804 until 1812.

⁸¹ Pleasance Smith, see entries for 30 April and 4, 14, 15, 18, 21, 23 and 28 May 1084, *Diary of Lady Pleasance Smith of her visit to London, 26 Apr-11 Jun 1804*, SRO 12/1.

course on Belles Lettres.⁸² The artist John Opie (1761-1807) and his wife, the novelist and poet Amelia Opie, were both made Life Subscribers in return for John Opie giving a course of lectures on painting in 1804.⁸³ Sydney Smith's wife, Catharine Amelia Smith (1768–1852), was given a complimentary ticket to the lectures after her husband offered to give a course on moral philosophy in 1805.⁸⁴

The dark number will skew how representative this prosopographical study is of the Royal Institution's audience. Over a third of the main female accounts used in this thesis (8 out of 21) prove that women were in attendance at lectures when evidence from the administrative archives would indicate otherwise. As the Royal Institution Managers externalised women's admission to the Royal Institution for most of the period studied, it must be taken into account that a large amount of the female subscription information is missing. The evidence in the administrative archives cannot confirm observations that the audience was mostly female.

2.4 The problem with Proprietors

Between the foundation of the Royal Institution and 12 June 1809, Proprietors brought an income of £22,530 to the Institution, whereas Life Subscriptions and Annual Subscriptions brought in £5,263 5 shillings and £17,470 19 shillings respectively, as calculated by the Visitors.⁸⁵ For a substantial sum that ranged from fifty guineas in 1799,⁸⁶ to 200 guineas in 1806,⁸⁷ Proprietors could buy one share each in the Royal Institution and were granted more privileges than any other type of subscriber (see Table 1). However, most of the income from Proprietor's shares was raised in the first four years of the Institution's existence (see Graph 2). Indeed, by 1803 it was Annual Subscribers, not Proprietors, who had become the main source of income for the Royal Institution (see Graph 2). The Guard Book of the Royal Institution shows the Visitors' calculations of which subscriber groups were bringing in the most money, and it brought to the Managers' attention a problem

⁸² RI MM, 23 January 1804, 3:204.

⁸³ RI MM, 23 January 1804, 3:204.

⁸⁴ RI MM, 10 December 1804, 3:354.

⁸⁵ RI Guard Book Volume 1, on 57.

⁸⁶ RI MM, 3 February 1800, 1:105-106.

⁸⁷ *The Charter and Bye-Laws of the Royal Institution of Great Britain; together with a list of the Proprietors and Subscribers* (London, 1806), 26. From copy held at the British Library, tracts 676.

that had been simmering for seven years – the Proprietor system was unsustainable.⁸⁸ As early as 1803, annual subscriptions were a bigger source of annual income for the Royal Institution than Proprietors shares. When some Annual Subscribers complained after hearing a rumour that the annual subscription rate would be increased, the Managers were forced to rescind the planned increase before it was even advertised.⁸⁹

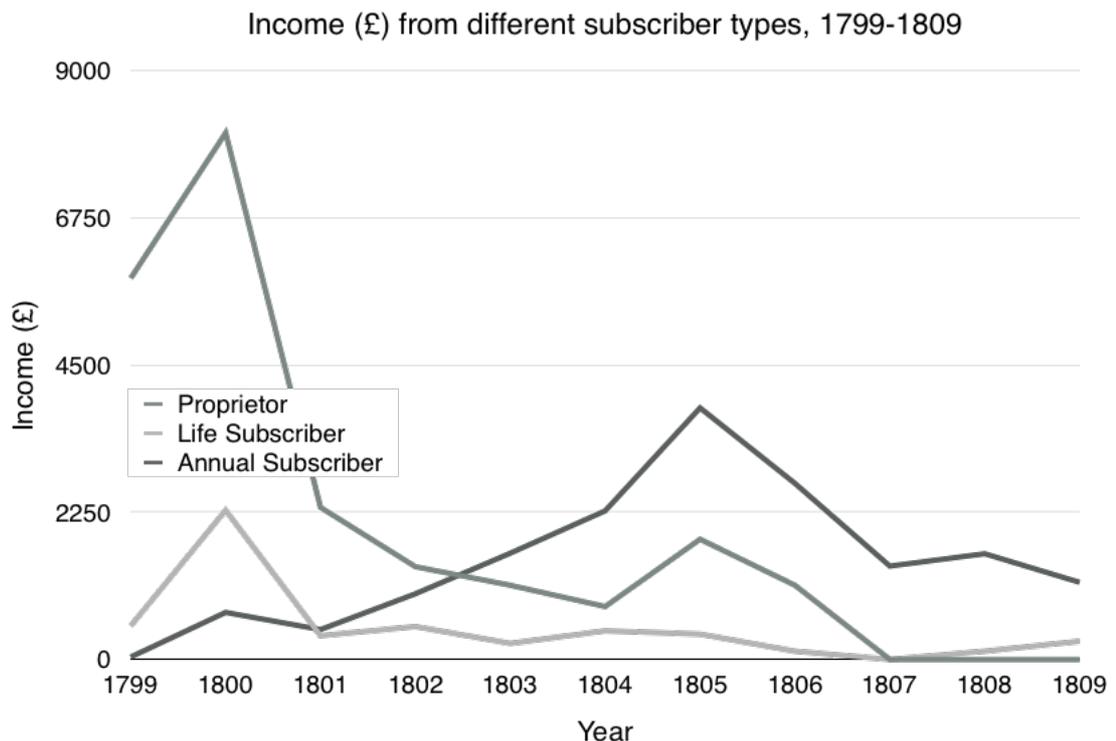
Many of these annual subscriptions came from women. In the lecture season that ran from winter 1803 until spring 1804, (male) Annual Subscribers were the second largest group at 175 subscribers, only three Proprietors and three Life Subscribers were recorded. But the largest subscriber group was the “ladies & young persons” Annual Subscriber group at 242, which was over half of the total 423 subscriptions for that season.⁹⁰ Note that in 1803, despite women being the largest subscriber group of that season, no female subscribers were recorded in the Managers’ Minutes (see graph 1). There are only five recorded instances of a “young person” subscribing;⁹¹ all five were male, which suggests that both women and girls were subsumed under the category of “Ladies.”

⁸⁸ “Annual Report of the Visitors of the Royal Institution to the Proprietors, 18 April 1809,” RI Guard Book, Volume I, on 57.

⁸⁹ RI MM, 14 June 1802, 3:49.

⁹⁰ RI MM, 2 April 1804, 3:245.

⁹¹ Mr Francis Bernard and Mr Thomas Tyringham Bernard of Old Burlington Street, see *Subscribers 1805*, 126; and Mr Joshua Bacon, Mr Lewis Mackenzie and Mr William H. F. Stroud, who were recommended by Reverend Josiah Pratt, a Life Subscriber, see RI MM, 19 December 1803, 3:177.



Graph 2: Income in pounds (£) from three main subscriber groups to the Royal Institution (Proprietor, Life Subscriber, Annual Subscriber) over the period when subscriptions opened in 1799 until 12 June 1809. Figures are taken from RI Guard Book Volume 1, on 57, and only include subscriptions that receipts were issued for.

Being a Proprietor of the Royal Institution came with its perks. Proprietors were given two transferrable tickets that granted each bearer admission to the lectures.⁹² Transferrable tickets allowed access to the lectures without making money for the Royal Institution. Early in 1803, when the Royal Institution was showing signs of financial strain, a select committee was tasked with finding ways to decrease expenses and increase income. They estimated that 680 transferrable tickets were in circulation.⁹³ By 1803, it was annual subscriptions that were making the Royal Institution money (see Graph 2) and their places in the 900-capacity lecture theatre were vying with the 680 transferrable Proprietors' tickets that were in circulation, allowing people to attend lectures without further payment to the Royal Institution.

⁹² Confirmation that Proprietors were given two transferrable tickets is found on a printed form designed to request a subscription to the Royal Institution on the recommendation of Count Rumford, Royal Institution Archives, "Administration and Early Correspondence," RI MS AD/03/A/01, box 86, folder 3.

⁹³ "Royal Institution Report of Select Committee to the Managers 7th March 1803," Archives of the Royal Institution, RI Guard Book, Volume I, on 17. In the Managers' Minutes, which copied the report of the Select Committee, this became "not less than 700 Proprietor's transferrable tickets" in circulation, see RI MM, 7 March 1803, 3:97.

Proprietors were then limited to one transferable ticket as opposed to two,⁹⁴ and this one transferable ticket had to be exchanged for an Annual Subscription of a nominated person only after approval at a Managers' Meeting.⁹⁵ It was also possible for a Proprietor to forfeit their personal admission to the Royal Institution for no less than a year in exchange for an Annual Subscription for a nominated person, a transfer that also had to be approved at a Managers' Meeting.⁹⁶ The Royal Institution did not make money in either of these scenarios, but these restrictions gave the Managers more control over admissions.

From 1799 until 1809, there are only thirty-seven instances recorded of Proprietors asking the Managers to change their transferable ticket or right to personal admission into an Annual Subscription for a named person (eight of which were female).⁹⁷ Even after the transferable tickets were halved in number in 1803, this still left around 300 transferable tickets that used up the limited space in the lecture theatre without making the Royal Institution any further income. Doormen were supposed to check the names on the tickets, but only flagrant abuse of the system would have led to being caught – in April 1805 a gentleman was caught attempting to get into the lecture theatre with the ticket of Mrs Pope of Bloomsbury Square.⁹⁸

Finally, Proprietor's shares were hereditary or saleable.⁹⁹ The transferrable nature of Proprietor's shares, like the occupation of lecture seats through Proprietor's transferable tickets, allowed access to the lectures without further payment to the Royal Institution. The number of Proprietors was capped at 374 in 1808,¹⁰⁰ and the Managers had made attempts to stop the admission of more Proprietors as early as

⁹⁴ RI MM, 7 March 1803, 3:99-100.

⁹⁵ RI MM, 21 March 1803, 3:113.

⁹⁶ RI MM, 21 March 1803, 3:113.

⁹⁷ See RI MM 1 May 1801; 26 April 1803; 6 February 1804; 20 February 1804; 5 March 1804; 16 April 1804; 23 April 1804; 30 April 1804; 4 March 1805; 13 May 1805; 13 January 1806; 20 January 1806; 3 February 1806; 10 February 1806; 24 March 1806; 12 January 1807; 23 February 1807; 16 November 1807; 18 January 1808; 29 February 1808; 9 May 1808; 6 June 1808; 15 August 1808; 9 January 1809; 23 January 1809; 30 January 1809; 6 February 1809.

⁹⁸ RI MM, 22 April 1805, 4:62.

⁹⁹ "A Bill, for enlarging the Powers granted by His Majesty to the Royal Institution of Great Britain, and for extending and more effectually promoting the Objects thereof" RI Guard Book, 1:67, on 3.

¹⁰⁰ RI MM, 23 May 1808, 4:352.

1803.¹⁰¹ However, as the admissions system was so rooted in personal connections, applications made to individual Managers were hard to turn away.

Although women were eligible to apply to all three main subscriber categories, only ten women in this period were listed as Proprietors, and nine listed as Life Subscribers. Overwhelmingly, women chose annual subscriptions – and it was the income from annual subscriptions that had by March 1803 “become absolutely necessary to the support of the Establishment.”¹⁰² In his prosopographical study of the Royal Institution, Morris Berman included Proprietors while omitting Annual and Life Subscribers. Berman assumed that unlike Proprietors, Annual and Life Subscribers had no influence over the Royal Institution – but this was not correct.

Keeping the Proprietor subscriber class would be unsustainable. In 1810, the Managers of the Royal Institution, with the “unanimous” support of the Proprietors, sent a bill to Parliament to “enlarge the powers” given to the Royal Institution through the Royal Charter.¹⁰³ In practice, this Act passed by Parliament on 18 April 1810,¹⁰⁴ allowed the Royal Institution to end the Proprietor system by getting rid of the 374 Proprietor’s shares. The Charter of the Royal Institution had received the Privy Seal on 13 January 1800,¹⁰⁵ and the Great Seal by 27 January 1800,¹⁰⁶ thus any changes made to the Charter, such as getting rid of Proprietor’s shares, had to be approved by Parliament. The Managers either bought out the Proprietor’s shares for £42 10 pence a share,¹⁰⁷ or the Proprietor became a “Member” and could nominate another person to become a Life Subscriber for free.¹⁰⁸ The value of the Proprietor’s shares had been determined by a valuation of the property of the Royal Institution that was not limited to the building but also included assets such as the

¹⁰¹ “Royal Institution Report of Select Committee to the Managers 7th March 1803,” 17.

¹⁰² “Royal Institution Report of Select Committee to the Managers 7th March 1803,” 17.

¹⁰³ “A Bill, for enlarging the Powers granted by His Majesty to the Royal Institution of Great Britain, and for extending and more effectually promoting the Objects thereof” RI Guard Book, 1:67.

¹⁰⁴ “Royal Institution Act of Parliament,” RI/MS/AD/02/A/01/E.

¹⁰⁵ RI MM, 13 January 1800, 1:84.

¹⁰⁶ RI MM, 27 January 1800, 1:91.

¹⁰⁷ RI MM, 11 June 1810, 5:115.

¹⁰⁸ “A Bill, for enlarging the Powers granted by His Majesty to the Royal Institution of Great Britain, and for extending and more effectually promoting the Objects thereof” RI Guard Book, 1:67, on 3.

mineralogical collection and laboratory apparatus.¹⁰⁹ Only seventeen Proprietors opted to exchange their shares for money.¹¹⁰

The Act of Parliament scrapped the Proprietor system and left Annual and Life Subscribers untouched. It was made explicit that no change would be made to the Life or Annual Subscriber groups, “as if this act had not been made.”¹¹¹ Humphry Davy, when given the task of explaining the changes that would be caused by the 1810 Act of Parliament to the Royal Institution audience, stressed the Act would “interfere with none of the privileges granted to the Life and Annual Subscribers.”¹¹²

Collating the information from across different administrative sources shows that actors could be more committed to the Royal Institution than contemporary dismissals of the Royal Institution’s fashionable audience might lead one to believe. For example, the Right Honourable Mrs Wyndham (Elizabeth Ilive), who had established her own chemical laboratory at Petworth, subscribed to the Royal Institution on the recommendation of the distinguished patroness, the Countess of Bessborough in 1801.¹¹³ Wyndham was listed again as a subscriber to the lectures in 1805,¹¹⁴ and she was still subscribing to the lectures in 1812.¹¹⁵ Women overwhelmingly chose to subscribe to the lectures only, and this was a subscription that had to be paid annually. Out of the total 844 female subscribers found in this study, at least 83, almost a tenth, subscribed according to the records to more than one lecture season. The dark number of the prosopographical study should also be taken into account here – Eleanor Anne Porden is only listed in the administrative

¹⁰⁹ The chemical apparatus was valued at £140, the mineral collection (including the cases) at £400, and the models, mathematical and philosophical Instruments valued at £787 14 shillings 6 pence, see RI MM, 19 March 1810, 5:54.

¹¹⁰ See RI MM, 11 June 1810, 5:115; 18 June 1810, 5:117; 25 June 1810, 5:119; 2 July 1810, 5:121; 30 July 1810, 5:127; 6 August 1810, 5:131; and 27 August 1810, 5:134.

¹¹¹ “A Bill, for enlarging the Powers granted by His Majesty to the Royal Institution of Great Britain, and for extending and more effectually promoting the Objects thereof” RI Guard Book, 1:67, on page 9.

¹¹² Davy, *3 March 1810 lecture*, 23.

¹¹³ RI MM, 16 February 1801, 1:134.

¹¹⁴ *Subscribers 1805*, 125.

¹¹⁵ RI *Ledger of Receipts for 1812*, 1:13.

archives in 1812, but she stated that she had attended the lectures since 1805.¹¹⁶ This further challenges Berman and Forgan's omission of Annual or lecture-only Subscribers on the basis that they were less committed or important to the Royal Institution's success.

2.5 Conclusion

After a consideration of the techniques that historians of science have used to understand audiences, a combination of Higgitt and Withers's approach to prioritise audience accounts with the important addition of prosopography has therefore been adopted for this thesis. This was made possible because of the extensive administrative archives of the Royal Institution. Prosopography can be used to address the important methodological issue raised by Higgitt and Withers – how representative are a few audience accounts of a whole cohort? In particular, the titles and addresses of the female audience collected can be used to comment on the social position of the Royal Institution's female audience, as well as revealing the importance of female networks to the Royal Institution – this will be illustrated in Chapter 4, "A very incongruous union: fashion and chemistry." In the next chapter there is an emphasis on the interests of the distinguished patronesses Viscountess Palmerston and Margaret Bernard, as these two women were the most active in bringing other women to the Royal Institution in its earliest years, as determined by prosopography.

One advantage of using prosopography is that it unearths actors yet to be connected with the history of science. This is important for a thesis that seeks to write more women into the history of science. The prosopographical method does however have an important limitation – the dark number. Women who could attend the lectures as the wife or unmarried daughter of a Proprietor tended not to be recorded in the administrative archives. Furthermore, the bulk of audience information for the prosopographical analysis has been drawn from the Managers' Minutes, yet women are very rarely recorded in those minutes between 1802 and 1809. In 1802 and 1803, Horner, Brougham and Gillray questioned the seriousness

¹¹⁶ Eleanor Anne Porden to John Franklin, 4 June 1823, D3311/8/3/19.

of science when fashionable women were allowed too much influence. Perhaps the Managers were uncertain about how the female admissions system via the distinguished patronesses would be received. The next chapter gives a more definite case of the Managers' reluctance to have on record something that had the potential to incriminate them or damage the Royal Institution's reputation, namely their response to Thomas Webster's School for Mechanics.

By 1810, it was the annual subscriptions that formed the Royal Institution's main source of income. Women tended to chose annual subscriptions. Only ten women had been Proprietors – women did not lose out when the Act of Parliament was passed. The passing of the Act of Parliament, which changed the Royal Institution into a membership organisation, marks the Managers' acceptance that the Proprietor system was no longer working. The shift in the balance of influence, from the nearly entirely male Proprietors to the Annual Subscriber group, meant that a female audience could have agency over the direction of a fledgling scientific institution.

Chapter 3 A “partly obscure reversal”

3.1 Introduction

A sacred alliance has been entered upon by all the continental powers to put an end if possible, to the evils of common war; could not a sacred alliance be managed between the rulers of opinion in Europe to alleviate (if not wholly to suppress) the innumerable evils arising from the war declared by *scientific* to *manual* industry?

We have considered the most effectual measure to attain so desirable an end would be the formation of a society under the following title: *European Society for Ameliorating the Situation of the Labouring Classes*. The founders of that society would be such persons (of both sexes) throughout Europe as have a name known either in their own country or in others by real and active philanthropy, chosen from among the highest classes in society down to privates, all possessing a well-earned reputation in the noble career of doing good.¹

In 1818, three years after the end of the Napoleonic Wars, the Genevan Marc-Auguste Pictet wrote to the English philanthropist William Allen with a proposal. Allen had lectured on Natural Philosophy at the Royal Institution;² Pictet was the second person ever to be made an Honorary Member of the Royal Institution by its Managers on 3 August 1801.³ Pictet referred to the burning down of a cotton manufactory in Manchester that he had read about in the English newspapers, which he believed was symptomatic of the war declared by “scientific industry” on “manual labour” that had swept across Europe for the past 20 years.⁴ The best solution, Pictet believed, was to establish a *European Society for Ameliorating the Situation of the Labouring Classes*. With its pan-European outlook, Pictet’s society would have been difficult to lobby for during the Napoleonic Wars. However, Pictet

¹ Marc-Auguste Pictet to William Allen, 15 August 1818, *Correspondance Sciences et Techniques*, 3:14.

² William Allen’s lectures are noted in the Royal Institution’s administrative archives. See RI MM, 5 December 1803, 3:172; 9 January 1804, 3:190; 14 January 1805, 4:9; 8 April 1805, 4:56; 19 May 1806, 4:184; 23 February 1807, 4:232; 15 June 1807, 4:267; 16 June 1806, 4:197; 27 November 1809, 4:495 and the General Meetings: Minutes 1799-1813, RI MS AD/02/B/01/A01, on page 69.

³ RI MM, 3 August 1801, 2:204.

⁴ Marc-Auguste Pictet to William Allen, 15 August 1818, *Correspondance Sciences et Techniques*, 3:14.

was otherwise returning to an old solution that had been tried on a national level in England before and since the “war on manual industry” had begun in the late-eighteenth century.

The *European Society* would be steered by “rulers of opinion” of both sexes, with proven experience in “real and active philanthropy.”⁵ Among others, Pictet named Jane Marcet, Charlotte, Lady Teignmouth,⁶ Maria Edgeworth and Anne, Lady Romilly (c. 1773-1818),⁷ all of whom had supported Davy and the Royal Institution, as candidates to help run the Society.⁸ These were women whom Pictet believed had made their reputations through “the noble career of doing good.”⁹ Morris Berman has argued that the Royal Institution was started “as an attempt to make rural philanthropy ‘scientific.’”¹⁰ If philanthropy was an important motivation behind the Royal Institution’s creation, and contemporaries like Pictet held that women could have a “noble career of doing good,” it would not come as a surprise to find that women like Marcet, Edgeworth, Lady Teignmouth and Lady Romilly took an interest in the Royal Institution. Yet women are absent from Berman’s account of the Institution’s first few years.

Pictet’s “rulers of opinion” serve as a reminder that women as well as men could support projects of scientific philanthropy, in which social welfare systems were investigated and experimented with in the same manner in which a philosopher might investigate nature. Margaret Bernard and Viscountess Palmerston, the two most active of the Royal Institution’s earliest distinguished patronesses, were involved in scientific philanthropy. Margaret Bernard and Viscountess Palmerston are of interest as they played a key role in gathering the Royal Institution’s first audience, and after their initial efforts, upper class women, as will be seen, came to

⁵ Marc-Auguste Pictet to William Allen, 15 August 1818, *Correspondance Sciences et Techniques*, 3:14.

⁶ Lady Teignmouth was among the first nineteen women to be elected as a Royal Institution subscriber, see RI MM, 17 February 1800, 1:129.

⁷ Mrs Romilly of Russell Square subscribed to the Royal Institution in 1805, see *Subscribers 1805*, on 123.

⁸ Marc-Auguste Pictet to William Allen, 15 August 1818, *Correspondance Sciences et Techniques*, 3:16.

⁹ Marc-Auguste Pictet to William Allen, 15 August 1818, *Correspondance Sciences et Techniques*, 3:14.

¹⁰ Berman, *Social Change and Scientific Organization*, 7-8.

dominate the Royal Institution's audience and influence its direction in its first decade.

In this chapter, I will flesh-out what Jon Klancher has called “a remarkable and still partly obscure reversal” of the original objects of the Royal Institution.¹¹ It was a failure to involve manufacturers and workmen, and success at appealing to an upper class female audience that was behind that reversal. In the first few years of the Royal Institution, several attempts were made to engage workmen and manufacturers. The Managers offered free lecture tickets for “artists,” proposed founding a School for Mechanics at the Institution, and set-up a Model Room so that the mechanical inventions of manufacturers could be displayed and imitated. All of these schemes had to be abandoned. The manufacturers believed (with good reason) that the Model Room would threaten their businesses. The political climate of England following the French Revolution – the fear of the effects of giving the poor too much scientific knowledge – operated against workmen at the Royal Institution, as exemplified by the Managers' abandonment of the School for Mechanics. This chapter begins by considering the Managers' projects aimed at manufacturers and workmen, such as the Model Room and free lecture tickets for “artists,” alongside the Royal Institution's first *Prospectus*. This was a *Prospectus* that lumped all of those who were involved in trades and manufacturers together into one category and belittled their work.

The second section scrutinises the scientific philanthropic projects of Margaret Bernard and Viscountess Palmerston that pre-dated the Royal Institution, and makes connections between these ladies' earlier schemes and the projects later attempted at the Royal Institution. Linda Colley has argued that in the late-eighteenth and early-nineteenth centuries, élite males pursued responsibilities that they believed demonstrated their service to the nation in order to justify their social station.¹² I argue that Viscountess Palmerston and Margaret Bernard's patronage of the Royal Institution was a female contribution to this image of a service élite.

¹¹ Klancher, *Transfiguring the Arts and Sciences*, 54.

¹² Colley, *Britons*, 177-193.

However, the final section demonstrates how the same political climate that moved the upper classes to prove their worth at the top of the social hierarchy, also worked against the Royal Institution's scientific philanthropy projects, as it was feared that imparting too much scientific knowledge would destabilise the social order. This is exemplified in the Managers' abandonment of the School for Mechanics that was to be housed at the Royal Institution. Thus, the primary objective of the Royal Institution had faltered, and the stage was set for the secondary objective of the Royal Institution, to provide lectures for the upper classes, to take over.

The history given here will be familiar to readers versed in the early years of the Royal Institution. What is original is my examination of role that women played. This thesis is a story of how a female audience was able to influence the direction of a new scientific institution in the early-nineteenth century. The story begins with the creation of an opportunity – while the projects to involve manufacturers and workmen with the Royal Institution faltered, the distinguished patronesses succeeded in enlisting great numbers of their female peers to the institution.

3.2 Uniting manufacturers and men of science

In hoping that scientific and manual industry might still be made to cooperate rather than compete,¹³ Pictet echoed the wish of the first *Prospectus* of the Royal Institution written almost twenty years earlier. The *Prospectus* described an institution that was first and foremost an exhibition of new “mechanical inventions and improvements,”¹⁴ and had been prepared by Managers Sir John Coxe Hippisley and Sir Richard Joseph Sullivan in 1799.¹⁵ Heading the *Prospectus* was the stated dual objective of the Royal Institution:

For Diffusing the Knowledge, and Facilitating the General Introduction
of Useful Mechanical Inventions and Improvements; And for Teaching

¹³ Marc-Auguste Pictet to William Allen, 15 August 1818, *Correspondance Sciences et Techniques*, 3:14.

¹⁴ *Prospectus of the Royal Institution*, 8.

¹⁵ RI MM, 23 December 1799, 1: 76.

by Courses of Philosophical Lectures and Experiments, the Application of Science to the Common Purposes of Life.¹⁶

In order to “facilitate the general introduction of useful mechanical inventions and improvements,” a Model Room was proposed. The Model Room would be a collaborative project between philosophers and manufacturers, a “unity of pursuit between manufacturers and men of science.”¹⁷ The lectures, which the Royal Institution would become so famous for, were at first only the secondary objective.

The primacy of the Model Room can be seen in a pledge made by Hippisley on behalf of the Managers to the institution’s “Proprietors and Subscribers in general, and to the public” in January 1800.¹⁸ This pledge is recorded in the Managers’ Minutes, and it stipulated that mechanical models, including a working steam engine, as well as looms and bridges, would be on display at the Royal Institution. Artists were expected to benefit from these models through replicating them in their work, as “workmen must see what they are to imitate.”¹⁹ In the margins of the Managers’ Minutes, against Hippisley’s pledge to provide the mechanical models, the words “the object of the RI” was written as a subheading.²⁰

Manufacturers and workmen were thus the main targets for the Royal Institution’s activities when it was founded, yet most of its *Prospectus* appears to succeed in criticising both. The *Prospectus* was tapping into an old rhetoric that placed the labourer at the bottom of the social order. Furthermore, to the chagrin of the industrialists, the *Prospectus* made no clear differentiation between the manufacturers who controlled industries and the workmen that they employed. Among the putative faults of the worker listed in the *Prospectus* was an inability to break old habits; jealousy and envy of the works of others; and above all “interested motives.”²¹ In most descriptions, the *Prospectus* is vague about whom the list of faults described applied to. For example, the *Prospectus* argued that a man who

¹⁶ *Prospectus of the Royal Institution*, title page.

¹⁷ *Prospectus of the Royal Institution*, 9.

¹⁸ RI MM, 27 January 1800, 1:92.

¹⁹ *Prospectus of the Royal Institution*, 8.

²⁰ RI MM, 27 January 1800, 1:92.

²¹ *Prospectus of the Royal Institution*, 4.

worked with his hands on a particular process had no knowledge of what happened to his materials before and after he worked on them, let alone of other trades and manufactures. Yet this statement was used to support the supposed ignorance of manufacturers rather than workmen, as the *Prospectus* then lamented how manufacturers, had “neither the knowledge, the inclination, nor the spirit to make improvements.”²²

Contrasted against both the manufacturer and the workman was the philosopher who “pursued truth,” “harvested discovery” (in a nod to the Royal Institution’s agricultural interests) and was “rewarded with utility.”²³ Invention was “peculiarly the province of the man of science” with the ability to see the whole,²⁴ unlike the manufacturer who was motivated by “obtaining his bread.”²⁵ As Cynthia Koepp has argued, there was a classical notion, which persisted throughout the Enlightenment in Western Europe, of work as something shameful, subservient as it was to baser instincts.²⁶ The philosopher could free himself from the “physical bondage” of necessary labour,²⁷ or, as the *Prospectus* puts it, “detach” himself from “the ordinary pursuits of life,”²⁸ provided others kept working to produce the materials needed by society. The constructed identities of the philosopher and the manufacturer in Royal Institution’s *Prospectus* reflect this classical notion – that to work because one had to make a living was shameful. A philosopher could not be expected to “descend from the sublime general theories of science” in order to contemplate such lesser schemes as profit and loss – so the manufacturer would be needed not only for his practical knowledge, but so that the philosopher would not dirty himself with capital.²⁹ The philosopher described in this earliest *Prospectus* of the Royal Institution also chimes with Jan Golinski’s description of Humphry Davy’s efforts to self-fashion himself as a philosopher, and his fear of being associated with

²² *Prospectus of the Royal Institution*, 6.

²³ *Prospectus of the Royal Institution*, 6.

²⁴ *Prospectus of the Royal Institution*, 6.

²⁵ *Prospectus of the Royal Institution*, 10.

²⁶ Cynthia J. Koepp, “The Alphabetical Order: Work in Diderot’s *Encyclopédie*” in Stephen Laurence Kaplan and Cynthia J. Koepp (eds.) *Work in France: Representations, Meaning, Organization, and Practice* (Ithaca and London: Cornell University Press, 1986): 229-257, on 249.

²⁷ Koepp, “The Alphabetical Order,” 246.

²⁸ *Prospectus of the Royal Institution*, 6.

²⁹ *Prospectus of the Royal Institution*, 6-7.

“commercial speculation.”³⁰ Indeed, Davy made sure to differentiate between his friend, the businessman Samuel Purkis, “an excellent *practical* tanner,” and he, the philosopher, who was theorising on the art of tanning, in a letter to Davies Giddy.³¹

Koepp also argued that although Denis Diderot’s (1713-1784) *Encyclopédie* (1751-1772) championed workers for their usefulness for society, his stress on workers’ utility was based on the necessity that someone had to produce the goods that could be consumed by the upper classes.³² At the Royal Institution, there was also an emphasis on science that was “useful.” A Report of the General Meeting of Proprietors re-phrased the Royal Institution’s aim of “teaching the application of Science to the common purposes of life” to “teaching the application of Science to the *useful* purposes of life.”³³ This same change was made in the *Prospectus*.³⁴ The word “useful” was used seventeen times in the *Prospectus*, twice in describing that “strikingly useful apparatus, the steam-engine.”³⁵ Indeed, Hippisley pledged that full-size, working steam engines would be exhibited in the Model Room, although constructing one of these massive engines in a room of the Mayfair town house would have been a challenge.³⁶

Hippisley praised the steam engine as an application of science to a useful purpose, a product of what Peter Jones has called “the science and technology interface.”³⁷ However, subordinating workmen to the will of philosophers did not create this steam engine. Rather, this improved steam engine was the work of James Watt (1736-1819) and Matthew Boulton (1728-1809), who combined the attributes of the philosopher and workman. An important foil to the artificial differentiation between the philosopher and the workman came in the form of this group of industrialists based in the West Midlands, whom Peter Jones has called *savant-*

³⁰ Golinski, *The Experimental Self*, 140.

³¹ Letter from Humphry Davy to Davies Giddy, 26 October 1802, quoted in Paris, *The Life of Sir Humphry Davy*, 1:104, emphasis mine.

³² Koepp, “The Alphabetical Order,” 240-241.

³³ Report of the General Meeting of Proprietors, 3 February 1800, RI MS AD/03/A/01, on page 4.

³⁴ *Prospectus of the Royal Institution*, 10.

³⁵ *Prospectus of the Royal Institution*, 2 and 14.

³⁶ RI MM, 27 January 1800, 1:92.

³⁷ Peter M. Jones, *Industrial Enlightenment: Science, technology and culture in Birmingham and the West Midlands, 1760-1820* (Manchester and New York: Manchester University Press, 2008), on 110-116.

fabricants.³⁸ Of that group, Jones singled out Matthew Boulton, founder of the Soho Manufactory near Birmingham, as a highly skilled workman who also took seriously his role of *savant* within the Republic of Letters. Boulton found it difficult to reconcile his commitment to the free exchange of knowledge, as expected of a philosopher within the Republic of Letters, with the constant menace of industrial espionage that threatened his livelihood.³⁹

This explains Boulton's hesitant attitude towards the Royal Institution, a "late-century monument to the diffusion of knowledge," that Boulton the philosopher would have supported.⁴⁰ As J. Marc MacDonald has pointed out, the Royal Institution's proposed Model Room could undermine the livelihood of Boulton the manufacturer.⁴¹ Boulton and his business partner James Watt had sometimes closed the gates of their manufactories to guard against espionage, and here was the Royal Institution proposing to display inventions for others to copy and replicate. Furthermore, the high-profile presence of Count Rumford, who, while under the employ of the Elector of Bavaria, had sent a spy to Soho in 1791, would not have endeared Boulton to the Royal Institution.⁴²

Ten years after Hippisley made his pledge, in a lecture given at the Royal Institution on 3 March 1810, Davy admitted that the Model Room at the Royal Institution "remained almost empty."⁴³ Davy regretted that the Royal Institution's "benevolent" plan of creating a Model Room had been thwarted by those who had apparently stood to gain the most benefit – the manufacturers.⁴⁴ Davy needed to frame the failures of the Royal Institution in such a way that did not upset his patrons: the fault did not lie with the upper classes, who had fulfilled their part of

³⁸ Jones, *Industrial Enlightenment*, 116-129.

³⁹ Jones, *Industrial Enlightenment*, 157.

⁴⁰ Jones, *Industrial Enlightenment*, 118.

⁴¹ J. Marc MacDonald, *Crossroads of Enlightenment 1685-1850: Exploring Education, Science, and Industry Across the Delessert Network* (University of Saskatchewan PhD thesis, 2015), 371.

⁴² Jones, *Industrial Enlightenment*, 142.

⁴³ Davy, *3 March 1810 lecture*, 8.

⁴⁴ Davy, *3 March 1810 lecture*, 6-7.

the bargain by supporting the Royal Institution, but with the views of the manufacturers.⁴⁵

Davy helped perpetuate an artificial separation between the philosopher and the manufacturer, a separation that was foiled in the example of a *savant-fabricant* like Boulton. However, Boulton's son, Matthew Robinson Boulton (1770-1842), was characterised by Jones as a businessman, not a *savant-fabricant* like his father.⁴⁶ Robinson Boulton counselled his father against supporting the Royal Institution.⁴⁷ Davy paraphrased the objection Boulton senior then made to the Model Room, namely that making inventions transparent for all to copy would remove any incentive to invent those machines in the first place.⁴⁸ In deliberate contrast with Boulton's interested motives, Davy had earlier remarked that the Royal Institution did not display any patent inventions as "so dignified a body" as the Institution could not be "subservient to the selfish views or interests of individuals."⁴⁹

In the *Prospectus*, men like the Boultons were made indistinguishable from their workmen. In the letter to his father outlining his objections to the Model Room in March 1800, Robinson Boulton scoffed at the kind of superior status Hippisley and Sullivan had accorded themselves and their peers in the Royal Institution's *Prospectus*. Robinson Boulton accused the Royal Institution's "Nobility and other idle Loungers" of using the "Perseverance and painful study of the grovelling mechanics" for their own "pleasant amusement," while also claiming back for the manufacturers the title of "inventor."⁵⁰ Davy perhaps was aware that the *Prospectus* had been less than flattering towards manufacturers, and instead called Boulton senior "one of the greatest practical mechanical philosophers of the age," a label that complements Jones' *savant-fabricants*.⁵¹ As with Samuel Purkis the

⁴⁵ Davy, *3 March 1810 lecture*, 7.

⁴⁶ Jones, *Industrial Enlightenment*, 227.

⁴⁷ MacDonald, *Crossroads of Enlightenment*, 375.

⁴⁸ Davy, *3 March 1810 lecture*, 8-9.

⁴⁹ Davy, *3 March 1810 lecture*, 7.

⁵⁰ Matthew Robinson Boulton to Matthew Boulton, March 1800, quoted in MacDonald, *Crossroads of Enlightenment*, 374.

⁵¹ Davy, *3 March 1810 lecture*, 8.

“practical tanner,” Davy used the word “practical” to set himself apart from Boulton.

Workmen or “artists” would be admitted to the Royal Institution for scientific instruction, provided they accepted a subordinate position. Davy was asked to prepare a course of lectures on “the chemical principles of the art of tanning” to begin on 2 November 1801, but only tanners recommended by Proprietors would be able to attend gratis.⁵² As “an experiment” in 1802, Proprietors were given the power to invite “artists and mechanics.”⁵³ Each Proprietor was furnished with an extra transferrable ticket to give to the artist of their choice, marked blue to distinguish those tickets from the red transferrable tickets they already owned and could give to their peers, so that the artist could access the gallery (separate from the rest of the lecture theatre) to attend the lecture – artists’ blue tickets did not allow access to anywhere else in the building.

Glasgow’s Anderson’s Institution, founded in 1796, had already implemented activities similar to these early schemes of the Royal Institution. John Anderson (1726-1796), who had held the chair of natural philosophy at Glasgow University, founded Anderson’s Institution in his will.⁵⁴ Indeed, Thomas Garnett was the first lecturer of both the Royal and Anderson’s Institutions. Furthermore, Anderson’s already had a collection of mechanical apparatus, described in 1800 by Garnett as “particularly extensive,” and containing “working models of different kinds of machinery.”⁵⁵ Anderson was somewhat an isolated figure at Glasgow University: he did not hide his dislike for many of his colleagues, and his Will leaves the impression that some of his motivation for establishing Anderson’s *University* (it was intended

⁵² RI MM, 29 June 1801, 2:197. This course on tanning did not take place, see James, “Agricultural Chymistry is at present in its infancy,” 371.

⁵³ RI MM, 1 February 1802, 2:235-6.

⁵⁴ *Transcript of Professor John Anderson’s Will and Codicil* (hereafter *Anderson’s Will and Codicil*), Anderson’s College Records at the University of Strathclyde Archives, OB/1/2/1.

⁵⁵ Thomas Garnett, *Observations on a Tour of the Highlands and Part of the Western Isles of Scotland* in two volumes (London, 1800) 2:196.

to be a university but Anderson did not leave enough money) was to highlight the “neglect of duty” by the professors at Glasgow University.⁵⁶

In contrast to the Royal Institution, Anderson made it a requirement that both manufacturers and workmen should influence the direction of Anderson’s Institution, as Anderson had decreed in his Will that the trustees for his university should be drawn from nine classes, four of which would have been open to workmen. These four categories were tradesmen; agriculturists, including gardeners, farmers and husbandmen; workers in metal, glass and wood; and mediciners, including surgeons, apothecaries and druggists. The other four categories were lawyers, divines, manufacturers and merchants, natural philosophers, and Anderson’s kinsmen.⁵⁷ By 1806, then lecturer Andrew Ure (1778-1857) was pleased to inform the Managers and Trustees of Anderson’s Institution that their efforts “to diffuse the benefits of science among the manufacturers of the Glasgow community” had been met with praise from the British Government.⁵⁸ Ure had the attention of the Tory M.P. John Fordyce (1735-1809), who also took an active role at the Board of Agriculture in the office of Surveyor General of the Crown Lands.⁵⁹ Fordyce had written to ask Ure for a “correct outline of his mode of instruction” for “enlightening operative mechanicks.”⁶⁰ To the Managers and Trustees, Ure sang the praises of the “artizans of Glasgow,” five hundred of whom he reckoned attended his lectures.⁶¹

Not only were there scientific lectures for workmen already held at the contemporary Anderson’s Institution in Glasgow, there was also a contemporary society, based in London, that had possessed a repository for models and machines since the mid-eighteenth century – the Society for the Encouragement of Arts, Manufactures and Commerce, founded in 1754. In its *Prospectus*, the Royal

⁵⁶ *Anderson’s Will and Codicil*, 17. Anderson’s Institution was an antecedent to Strathclyde University.

⁵⁷ *Anderson’s Will and Codicil*, 3-6.

⁵⁸ *Transcript of Minutes of the Anderson’s Institution, 1799-1810*, 21 June 1806, 106 (hereafter *Anderson’s Institution Minutes, 1799-1810*), Anderson’s College Records at the University of Strathclyde Archives, OB/1/2/2.

⁵⁹ James, “Agricultural Chymistry is at present in its infancy,” 366.

⁶⁰ *Anderson’s Institution Minutes, 1799-1810*, 21 June 1806, 106.

⁶¹ *Anderson’s Institution Minutes, 1799-1810*, 21 June 1806, 108.

Institution praised the “most respectable” Society of Arts for the awarding of premiums to inventors, but implicitly denied that these premiums were capable of “diffusing the knowledge and facilitating the general introduction of useful mechanical inventions and improvements.”⁶² Yet the Society of Arts did aim to diffuse useful mechanical improvements. Moreover, it was common practice at the Society to award premiums to models made by workmen, have the models judged by workmen, and then to let knowledge of the improvements pass along the workmen’s own trade networks.⁶³

Contrast this to the Royal Institution *Prospectus*, written by Hippisley and Sullivan, where it was argued that the alterations of workmen were to be feared, and had brought “useful inventions” into “disrepute,” as the “pretend inventions” were “destitute of all real value.”⁶⁴ Invention was, supposedly, “peculiarly the province of the man of science,” not the workmen, nor the wealthy manufacturer.⁶⁵ The man of science was almost omnipresent, and could “behold and contemplate the prodigious number of truly scientific experiments, which are hourly performed in the workshops of ignorant men.”⁶⁶ The *Prospectus* spoke of unity between men of science and manufacturers yet described the workshops as being full of “ignorant” men. It is also worth noting that attempts at the Society of Arts to reduce the workings of machines to general mechanical theory had proved “arduous.”⁶⁷

The Royal Institution’s primary object, to use the Model Room to diffuse mechanical improvements while re-training workmen according to the scientific theory that underpinned their trades, was being done with some success at two contemporary institutions, Anderson’s Institution and the Society of Arts. These two institutions gave workmen and manufacturers a greater degree of power, and indeed respect, relative to that given by the Royal Institution. As the final section of this chapter shows, the Managers of the Royal Institution were not in agreement respecting how scientific knowledge might safely be given to the lower classes. Before turning to

⁶² *Prospectus of the Royal Institution*, 7.

⁶³ Paskins, *Sentimental Industry*, 132.

⁶⁴ *Prospectus of the Royal Institution*, 4.

⁶⁵ *Prospectus of the Royal Institution*, 6.

⁶⁶ *Prospectus of the Royal Institution*, 9.

⁶⁷ Paskins, *Sentimental Industry*, 150.

that disagreement, it is necessary to frame the Royal Institution's activities within a wider movement of scientific philanthropy in Western Europe, and how this led upper class women to become involved with the new Institution.

3.3 The service élite

What was distinctive about the projects for workmen at the Royal Institution, relative to those at Anderson's Institution and the Society of Arts, is that they were tied to the scientific philanthropy of Count Rumford. Before he worked on the Royal Institution, Rumford had instituted in 1790 a workhouse that used the beggars of Munich as labourers. While similar workhouses had been used across England since the late-seventeenth century, Anna Maerker has shown that what marked out Rumford's Munich workhouse was his claim to expertise on the basis that "nature and society could be investigated and manipulated by the same techniques."⁶⁸ Therefore Rumford, with his background of experimental investigations into heat and light, and his membership of Europe's scientific societies, was able to argue that it was he who was best placed to give advice on matters of welfare reform. Rumford's scientific philanthropy infiltrated the *Prospectus* of the Royal Institution – the laboratory was used as a metaphor for civil society, directed by the philosopher.⁶⁹ While Morris Berman's history of the early years of the Royal Institution played down the role of Rumford in the institution's founding,⁷⁰ Berman nevertheless noted that the other Managers, Thomas Bernard in particular, were disciples of Rumford's scientific philanthropy.⁷¹ However, what was overlooked in Berman's history of the early years of the Royal Institution was how appealing Rumford's scientific philanthropy was to upper class women.

Jon Klancher wrote that the Royal Institution was born at the end of the eighteenth century out of the "maelstrom" of the French Revolution, which caused many in the British-upper classes to press for reforms to the welfare system.⁷² Indeed, the Managers' Minutes of 1803 recorded the complaint that the house of the Royal

⁶⁸ Maerker, "Political Order and the Ambivalence of Expertise," 220.

⁶⁹ *Prospectus of the Royal Institution*, 6.

⁷⁰ Berman, *Social Change and Scientific Organization*, 31.

⁷¹ Berman, *Social Change and Scientific Organization*, 8.

⁷² Klancher, *Transfiguring the arts and sciences*, 56.

Institution was paying too much to the Poor Rate of the parish.⁷³ Berman has argued that the Royal Institution started life as a “philanthropic institution”⁷⁴ created to find scientific solutions to alleviate rural poverty, with a view to dampening the desire among Britain’s poor for a revolution like that seen in France.⁷⁵ Berman spoke of scientific philanthropy, a form of charity that was “‘organised’ or ‘systematic,’” of which building soup kitchens and trialling different recipes for soups was a prime example.⁷⁶

With soup kitchens, Berman made the important link between the Royal Institution and Thomas Bernard’s *Society for Bettering the Condition and Increasing the Comforts of the Poor* (a title not unlike that proposed for Pictet’s *European Society* in 1815). Klancher argued that the term “philanthropy” was only used to describe Bernard’s projects because the term “innovation” was too Jacobin.⁷⁷ Neither Berman nor Klancher address how these philanthropic schemes matched the interests of women in the upper classes.

Connections between scientific philanthropy and upper class women have been made before, if not at the Royal Institution. Anna Maerker has shown that in Munich, Rumford appealed for the support of groups not represented by the existing political structure, including women.⁷⁸ The projects of the Royal Institution’s distinguished patronesses echoed the activities of the *Junta de socias de honor y mérito* and *Asociación de señoras* in late-eighteenth century Madrid, as detailed by Elena Serrano.⁷⁹ Both of these upper-class female societies intervened in the lives of the local poor, performing chemical experiments to improve conditions in the Madrid Foundling House and Madrid’s jails. The female-steered projects in Madrid also took place against a backdrop “banner of utility,” used to argue for chemical Chairs in universities and schools for artisans.⁸⁰ Serrano noted

⁷³ RI MM, 19 December 1803, 3:179.

⁷⁴ Berman, *Social Change and Scientific Organization*, 18,

⁷⁵ Berman, *Social Change and Scientific Organization*, 1-2.

⁷⁶ Berman, *Social Change and Scientific Organization*, 8.

⁷⁷ Klancher, *Transfiguring the Arts and Sciences*, 54.

⁷⁸ Maerker, “Political Order and the Ambivalence of Expertise,” 228.

⁷⁹ Serrano, “Chemistry in the city.”

⁸⁰ Serrano, “Chemistry in the city,” 152.

how the women of the *Junta* translated scientific treatises – María Lorenza de los Ríos y Loyo, the Marquise of Fuerte Híjar, translated some of the works of Count Rumford into Spanish.⁸¹ In 1799 the *Junta* had negotiated control of the Madrid Foundling House (the *Inclusa*) from the crown, and as part of their improvements they fitted a Rumford stove.⁸² Although Rumford’s instructions on how the poor should be provided for were based on his experiences in Munich, they were applied in England, Madrid, Edinburgh,⁸³ and even by Christian missionaries in the South Pacific, who treated the indigenous populations, “as Count Rumford advises, with first making them comfortable, before they attempted to render them virtuous.”⁸⁴ This application of Rumford’s scientific philanthropy regardless of local context was permissible, as scientific philanthropy necessarily required the principles of welfare to be universal, if it was held that the principles of nature were universal.⁸⁵

Viscountess Palmerston and Margaret Bernard were the Royal Institution’s two most active distinguished patronesses in its earliest years, and they were involved in scientific philanthropy. Bernard was involved in her husband’s activities at London’s Foundling Hospital, with the *Society for Bettering the Condition and Increasing the Comforts of the Poor* (a society led by her husband since November 1796),⁸⁶ and at the Royal Institution. On 17 February 1800, Bernard was one of eight women to be given a book in which to list the names of ladies who wished to become Proprietors or Subscribers to the Royal Institution.⁸⁷ According to what was recorded in the Managers’ Minutes, Bernard was the second most active of these eight women in recommending ladies to the Royal Institution and made twenty-three out of ninety-eight recommendations in the years 1800 and 1801.

⁸¹ Serrano, “Chemistry in the City,” 140.

⁸² Serrano, “Chemistry in the City,” 147.

⁸³ Anonymous, “Plan for the relief of the poor,” *Newcastle Courant*, 16 November 1799, 2b-c.

⁸⁴ Anonymous, “Missionaries,” *Northampton Mercury*, 18 May 1799, 4a. The *Northampton Mercury* gave as its source Captain Wilson of the ship *Duff*, which apparently sailed to the Friendly Islands, Society Islands and Marquesas Islands between 1796 and 1798.

⁸⁵ Maerker, “Political Order and the Ambivalence of Expertise,” 220.

⁸⁶ Sophia Elizabeth Higgins, *The Bernards of Abington and Nether Winchendon: A Family History* in four volumes (London: Longmans and Co., 1903-4), 3:229.

⁸⁷ RI MM, 17 February 1800, 1:129.

The reports published by the *Bettering Society*, which tended to be concluded with an “observations” section and went into detailed descriptions of dimensions and quantities, exemplify how scientific practice was applied to philanthropy. Both women and men wrote the *Bettering Society’s* reports. In March 1796, London’s Foundling Hospital had fitted an entire kitchen under the direction of Rumford himself. Rumford’s kitchen at London’s Foundling was the subject of a report written by “the Matron of the Foundling” on behalf of the *Bettering Society*.⁸⁸

Margaret Bernard also wrote reports for the *Bettering Society*. In an 1805 edition of the *Bettering Society’s* reports, she contributed an account of a village soup shop, supported by subscriptions, which had been set up in the village of Iver, Buckinghamshire, in October 1796.⁸⁹ The expenses, ingredients and recipe to make the soup are listed so that others could replicate the soup shop, and Bernard also insisted that patrons of soup shops should eat the soup themselves before giving it to the poor, to make the soup seem more desirable and in order to lead by example. Count Rumford intended the Royal Institution to have on occasion “experimental dinners,” where Proprietors and Subscribers could try fare cooked by new methods or new recipes.⁹⁰ Ten years later, Louis Simond described Rumford’s kitchen at the Royal Institution as “forgotten” and “out of fashion,” and again blamed the failure on the “prejudice” and “jealousy” of the workers (this time cooks and housewives), with their reluctance to adapt to new cooking methods.⁹¹ Although Simond’s remark that housewives, “in all countries, do not like to see the men usurp their government,”⁹² may have been intended as a joke, it is revealing of the extent to which the Royal Institution was attempting to tread on women’s territory in its early schemes.

⁸⁸ Matron of the Foundling, “Extract from an account of the kitchen, fitted up at the Foundling, under the direction of Count Rumford,” in *The Reports of the Society for Bettering the Condition and Increasing the Comforts of the Poor*, in two volumes (London, 1805; 4th ed.), 1:108-117.

⁸⁹ Margaret Bernard, “Extract from an account of a village soup shop, at Iver in the county of Bucks.,” in *The Reports of the Society for Bettering the Condition and Increasing the Comforts of the Poor*, in two volumes (London, 1805; 4th ed.), 1:166-174.

⁹⁰ Count Rumford, “Report, delivered before a Meeting of the Managers on 25 May 1801,” *Journals of the Royal Institution*, Numbers 2 and 3, 13th June 1801 (London, 1801): 17-28, on 20.

⁹¹ Simond, 24 January 1810, *Journal of a tour and residence in Great Britain*, 1:41-42.

⁹² Simond, 24 January 1810, *Journal of a tour and residence in Great Britain*, 1:41.

Another of Margaret Bernard's reports gave an account of the "Bath Repository for the Benefit of the Poor," which had also been set-up at the end of 1796, was supported by subscription, and governed by a committee of women chosen from the list of subscribers.⁹³ The poor of Bath were invited to use the repository as a place to advertise and sell their wares (without any deductions) to an upper-class female clientele. According to Margaret Bernard, a similar repository existed in London.⁹⁴ The Bath Repository had some similarities with the Royal Institution repository: there was an initiative at the Royal Institution to let workmen advertise specimens of work and sell their wares to Proprietors and Subscribers, on the condition that the specimens were inspected by the Managers.⁹⁵

Like the lectures that were promoted at the Royal Institution, Margaret Bernard insisted that the Bath Repository was of equal utility for improving the upper classes as well as the poor. The repository turned "caprice and fashion into sources of relief," and made use of idle time by directing energies towards "charity and benevolence."⁹⁶ Above all, the Bath Repository was "powerfully recommended by fashion," as the Royal Institution came to be thanks to the distinguished patronesses.⁹⁷ The "particular circumstances" of Bath and London made the repositories a success (the particular circumstances being that these places were centres of fashion), but Margaret Bernard hoped that the fashionable repository would be imitated in towns across England.⁹⁸

The Bath repository is one example of a scheme managed by women, in this case reported on by a distinguished patroness, that pre-dated similar schemes at the Royal Institution. Another example is the School of Industry ran by Viscountess Palmerston on her country estate at Broadlands in Hampshire. Caroe mistakenly saw Viscountess Palmerston's School of Industry as inspired by the Royal Institution,

⁹³ Margaret Bernard, "Extract from an account of the Bath repository for the benefit of the poor," in *The Reports of the Society for Bettering the Condition and Increasing the Comforts of the Poor*, in two volumes (London, 1805; 4th ed.), 2:314.

⁹⁴ Bernard, "Extract from an account of the Bath repository," 2:316.

⁹⁵ "Appendix" in *Prospectus of the Royal Institution of Great Britain, incorporated by Charter MDCCC* (London, 1800), pages 36-37, from copy held at the British Library, tracts 727.

⁹⁶ Bernard, "Extract from an account of the Bath repository," 2:317.

⁹⁷ Bernard, "Extract from an account of the Bath repository," 2:317.

⁹⁸ Bernard, "Extract from an account of the Bath repository," 2:318.

when in fact Viscountess Palmerston's school came first and was used as a model by Rumford for his kitchen at the Royal Institution.⁹⁹



Figure 3: Viscountess Palmerston (1752-1805), drawn by Mary Tate at Broadlands in 1801. From Brian Connell, *Portrait of a Whig Peer, Compiled from the papers of the Second Viscount Palmerston, 1739-1802* (London: Andre Deutsch, 1957), 129.

⁹⁹ Caroe, *The Royal Institution*, 9.

Viscountess Palmerston,¹⁰⁰ also known as Mary Mee, was the daughter of the City merchant Benjamin Mee and was the second wife of Henry Temple, second Viscount Palmerston (1739-1802). She had married on 7 January 1783, her father declared bankruptcy a year later,¹⁰¹ and for most of their marriage Viscount Palmerston gave his in-laws financial support.¹⁰² In the years 1800 and 1801 she was the most active admitter of women to the lectures, recommending thirty-one out of ninety-eight women, according to the Managers' Minutes. Viscountess Palmerston was a fairly intimate acquaintance of Count Rumford in the formative years of the Royal Institution, although she regretted that she did not see him as often as she would have liked to.¹⁰³

Viscountess Palmerston's 1799 engagement diary marks the name "Count Rumford" on 3 February 1799 shortly before the first meeting of the Royal Institution Managers was held on 9 March 1799 at the house of Sir Joseph Banks.¹⁰⁴ While at the University of Edinburgh, her son Henry John Temple (1784-1865, Prime Minister 1851-1858 and 1859-1865) lodged with Dugald Stewart (1753-1828), then holder of the moral philosophy Chair at the university. Through Viscountess Palmerston's introduction, Rumford was able to send the influential Stewart "paraphernalia" that would allow him to form a "complete idea" of the objects of the Royal Institution.¹⁰⁵ Her papers reveal that she knew which medicines Rumford took when he was in ill-health (a vegetable syrup),¹⁰⁶ that Rumford gave her the address of his "tinmen" on Gerrard Street in Soho,¹⁰⁷ and that she received "frequent delightful letters" from him when he went to Paris.¹⁰⁸ In the spring of 1802, Viscountess Palmerston transcribed Count Rumford's Parisian Journal, in which she praised Rumford's scientific philanthropy and said of her friend,

¹⁰⁰ Viscountess Palmerston's papers are part of the Broadlands Archives (BR), special collections of the University of Southampton.

¹⁰¹ Anonymous, "Bankrupts," *The European Magazine and London Review* (May 1784), 400.

¹⁰² Brian Connell, *Portrait of a Whig Peer, Compiled from the papers of the Second Viscount Palmerston, 1739-1802* (London: Andre Deutsch, 1957), 138.

¹⁰³ Viscountess Palmerston to Henry Temple, 26 June 1802, BR21/8/25.

¹⁰⁴ Viscountess Palmerston, *engagement diary 1799*, BR18/1/4.

¹⁰⁵ Viscountess Palmerston to Henry Temple, 6 June c. 1801, BR21/7/24.

¹⁰⁶ Viscountess Palmerston to her uncle William M. Godschall, 7 March 1800, BR19/6/55.

¹⁰⁷ Viscountess Palmerston, pages of an address book, BR18/4/5.

¹⁰⁸ Viscountess Palmerston to Emma Godfrey, 17 November 1801, BR18/5/5/72-5.

“benevolence and friendship ever leads him to lend his talents to the comfort of the poor or afflicted.”¹⁰⁹

Morris Berman acknowledged that Viscountess Palmerston played a key part in Rumford’s gaining acceptance into fashionable British society, but overlooked her involvement in Rumford’s particular brand of what Berman termed “scientific philanthropy.”¹¹⁰ Her account book from 1797 lists the names of pupils, both boys and girls, enrolled in her School of Industry, which comprised both an “infant” and a “great” school.¹¹¹ In the list of her female pupils for 1803, Palmerston also made an account of the occupations of the girls’ fathers – there were gardeners and labourers, with some of the girls listed as orphans. The School was the subject of a letter sent by Count Rumford to Viscountess Palmerston on 2 February 1799. Rumford referred to Palmerston’s School as “her little but useful *Institution*” which he expected to serve as a model for her neighbourhood.¹¹² Rumford prescribed that the children should be given “useful employment,” and “a good warm soup at dinner to encourage their industry.” He made her a drawing of a new kitchen for her establishment, although the materials for the kitchen were not then ready – he was waiting for the moulds to be finished so that the casts could be made at the foundry. Rumford assured her that he would have sent both the materials for the kitchen and the workmen to fit them, if the casts had been made.

It appears that Viscountess Palmerston had written to Rumford to get advice on managing her School, and he directed her to his published work, asking “have I not already explained these matters in my writings?”¹¹³ Rumford devoted the rest of his letter to his part in a new project that had caused him to forgo his planned return to America, the formation in London of an institution that would become the Royal

¹⁰⁹ Royal Institution Rumford papers, file 10, box 1064, facsimile of “Count Rumford’s Journal containing some curious accounts of Buonaparte” copied by Viscountess Palmerston.

¹¹⁰ Berman, *Social Change and Scientific Organization*, 11-12.

¹¹¹ Viscountess Palmerston, 1797 account book, BR18/2/1.

¹¹² Count Rumford to Viscountess Palmerston, 2 February 1799, Royal Institution Rumford papers, file 1, box 1064, emphasis mine.

¹¹³ Count Rumford to Viscountess Palmerston, 2 February 1799, Royal Institution Rumford papers, file 1, box 1064.

Institution. Rumford made it explicit that he was counting on her husband's support, and wanted also to hear what she thought of this London scheme.

Viscountess Palmerston was directed by Rumford in his letter to read his second and third *Experimental essays, political, economical and philosophical* (1796). The third essay, *Of food, and particularly of feeding the poor*, gave recipes much like those given by Margaret Bernard in the Reports of the *Bettering Society*.¹¹⁴ The second essay outlined plans for forming a "School of Industry" for the children of the poor, which might be set up by wealthy individuals, as an "experiment" in a single village or parish.¹¹⁵ Rumford also described the "School of Industry" as an asylum, an establishment, an *Institution*, and a workhouse (although he stressed not to use this last term because of its "odious" connotations). It appears she followed the plan in Rumford's essays. In January 1800, almost a year after writing the letter, Count Rumford went to stay with the Palmerstons at their country estate in Broadlands, Hampshire. In a letter to Joseph Banks, Rumford described the "Public Kitchen" of Viscountess Palmerston that had been opened in the nearby village of Romsey. Thomas Webster, Clerk of the Works at the Royal Institution, was also there, and had been tasked with making drawings of the kitchen. Rumford reflected that after Webster had seen the kitchen, he would then be "of great use to me [Rumford] in directing the works at Albemarle Street:" Rumford used the kitchen attached to Viscountess Palmerston's School of Industry in Romsey as a model for his kitchen at the Royal Institution.¹¹⁶

Linda Colley's concept of the "service élite" can be used to explain why Margaret Bernard and Viscountess Palmerston were attracted to the useful science of the Royal Institution when it was founded. Towards the end of the eighteenth century, following the loss of thirteen of Britain's American colonies and revolution in France, increasing criticism from both radicals and even middle-class conservatives

¹¹⁴ Count Rumford, *Count Rumford's Experimental essays, political, economical and philosophical. Essay III. Of food, and particularly of feeding the poor* (Dublin, 1796; 3rd ed.), 278-299.

¹¹⁵ Count Rumford, *Count Rumford's Experimental essays, political, economical and philosophical. Essay II. Of the Fundamental Principles on which general establishments for the relief of the poor, may be formed in all countries* (Dublin, 1796; 3rd ed.), 168.

¹¹⁶ Count Rumford to Sir Joseph Banks, 22 January 1800, Royal Institution Rumford papers, file 11, box 1066.

portrayed the British aristocracy as parasitic on the nation and unfit to rule.¹¹⁷ Spending vast sums of the national income on wars with France, yet maintaining a penchant for continental luxury goods and fine arts, the British aristocracy were furthermore accused of “cultural treason.”¹¹⁸

The élite needed to prove their social utility and justify their position in Britain’s social hierarchy, and Colley described how this was achieved for élite males. The education of aristocratic boys was homogenised through public schooling, where boys were fed on a diet of Classics that focussed on the heroism of nobles who fought and died for their country.¹¹⁹ War with Revolutionary and Napoleonic France gave the landed classes the opportunity to take high-ranking positions in the army or command squadrons of voluntary militia at home.¹²⁰ Fox hunting became a popular pursuit among the upper classes, who helped farmers by getting rid of vermin, while at the same time wearing uniforms that exhibited athletic prowess and served as reminders of the aristocracy’s military function.¹²¹ Younger élites baffled their elders by becoming “workaholics” and spending more of their time at the Houses of Parliament.¹²² All of these activities were exclusively male, which begs the question, how did their female counterparts take part in the reconstruction of the British aristocracy as a service élite, if indeed women took part at all?

To an extent, Colley answered this question in her chapter “Womanpower,” which outlined how women proved themselves patriots during the Revolutionary and Napoleonic Wars with France. However, the chapter did not explicitly tie this patriotism to her service élite concept. Moreover, Colley did not make the same amount of differentiation between the types of patriotism displayed by women across social classes as she did with men. I argue that getting involved with the Royal Institution was one way in which upper-class women could become part of

¹¹⁷ Colley, *Britons*, 152-154.

¹¹⁸ Colley, *Britons*, 166.

¹¹⁹ Colley, *Britons*, 167-168.

¹²⁰ Colley, *Britons*, 184.

¹²¹ Colley, *Britons*, 172.

¹²² Colley, *Britons*, 188.

Colley's service élite, as exemplified by the cases of the Royal Institution's most active distinguished patronesses, Margaret Bernard and Viscountess Palmerston.

In his first lecture of 1802, Humphry Davy described the British-upper classes as "the friends and protectors of the labouring part of the community," and congratulated the upper classes on "growing more attentive to the realities of life."¹²³ In the wake of social upheaval in France, where the guillotine had claimed both male and female victims, Margaret Bernard cultivated a "self-denying and charitable disposition."¹²⁴ Margaret Bernard would have enjoyed hearing Davy's introductory lecture to the first course of chemistry lectures that he gave in 1802, in which Davy praised those in the upper classes who abstained from "unnecessary enjoyments" in favour of being seen "to be useful"¹²⁵ – she saw the Bath Repository in the same light. As Golinski has argued, Davy imagined optimising the relationship between social classes by making the workman and the aristocrat appreciative of their responsibility toward each other:¹²⁶

We may look forwards with confidence to a state of society in which the different orders and classes of men will contribute more effectually to the support of each other than they have hitherto done.¹²⁷

Davy projected a society where men accepted "the unequal division of property and of labour, the difference of rank and condition amongst mankind" – where the workmen would accept the superiority of the higher classes.¹²⁸ To achieve this, the higher classes would have to fulfil their side of the contract too, a "social obligation"¹²⁹ that I argue could be realised by attending the Royal Institution.

Involvement at the Royal Institution was one way for women in the upper classes to serve the nation at a time when their place at the top of the social order had been questioned. Viscountess Palmerston had waited on the King and Queen of France

¹²³ Davy, *Discourse Introductory*, 21.

¹²⁴ This is a description of Margaret Bernard's character by her sister-in-law, Julia Smith, see Higgins, *The Bernards*, 3:225.

¹²⁵ Davy, *Discourse Introductory*, 21.

¹²⁶ Golinski, *The Experimental Self*, 131.

¹²⁷ Davy, *Discourse Introductory*, 20.

¹²⁸ Davy, *Discourse Introductory*, 21.

¹²⁹ Golinski, *The Experimental Self*, 131.

on 5 August 1792, five days before the Tuileries Palace was invaded and the monarchy overthrown.¹³⁰ Over ten years later, on 16 May 1803, an entry in her diary shows that Viscountess Palmerston still feared revolution might come to England:

Received a proof of natural civility from a man not far removed, by his dress, from a very low class. In getting under a rail to go to a field we were obliged to stoop and there being a ditch to step up it was rather difficult. The man was at a little distance. He came up quickly to assist me. I only mention this circumstance as a different demeanour has of late appeared in the lower ranks of people since the fatal Revolution...¹³¹

The Managers' and distinguished patronesses' desire for useful science, which promised to make the lower and higher classes serve one another, had to be balanced against their fear of schemes that might give too much power through scientific instruction to the workman and threaten the social order. The School for Mechanics proposed at the Royal Institution was one scheme that tipped the balance towards the latter sentiment.

3.4 The School for Mechanics

In correspondence with her uncle, Viscountess Palmerston remarked that foreign books concerning politics and religion were forbidden at the Royal Institution.¹³² Her uncle replied that, "the two subjects mentioned are very properly forbidden especially the first."¹³³ The Journal of the Royal Institution also noted that political publications were excluded from the Institution's reading rooms.¹³⁴ The Managers took other precautions to ensure the Institution did not earn itself a radical reputation. The Royal Charter, conferred upon the Royal Institution in 1800, meant that the Institution was exempt from the 1799 amendment to the Seditious

¹³⁰ Connell, *Portrait of a Whig Peer*, 263.

¹³¹ Viscountess Palmerston, diary entry of 16 May 1803, quoted in Connell, *Portrait of a Whig Peer*, 462.

¹³² Viscountess Palmerston to her uncle William M. Godschall, 7 March 1800, BR19/6/55.

¹³³ William M. Godschall to Viscountess Palmerston, 10 March 1800, BR19/6/56.

¹³⁴ Rumford, "Report, delivered before a Meeting of the Managers on 25 May 1801," 26.

Meetings Act of 1795, an amendment that imposed further restrictions on lectures.¹³⁵

The manuscript for an autobiography written by Thomas Webster gives further insight into the tense political climate within which the Royal Institution operated.¹³⁶ Count Rumford, with whom Webster was on “intimate terms,” employed Webster in the office of Clerk of the Works at the Royal Institution.¹³⁷ Webster wanted to found a School for Mechanics within the house of the Royal Institution, but his project was abandoned. In Webster’s words, his plans were “doomed to be crushed by the timidity of a few.”¹³⁸ Webster’s School for Mechanics deserves a close examination, as the failure of his plan demonstrates how the political climate worked against plans to involve workmen in the Royal Institution.

Thomas Webster resigned from the Royal Institution on 26 April 1802.¹³⁹ The Managers’ Minutes record health as the grounds for Webster’s resignation, but a letter sent by Webster to his mother suggests that he was unhappy – the Royal Institution had not answered his expectations and was not offering him a secure means of making a living.¹⁴⁰ In his autobiographical manuscript, Webster’s recollections of his involvement at the Royal Institution in its early years were bitter. He had tried and failed to start the School for Mechanics. He had tried and failed to become Thomas Garnett’s operator.¹⁴¹ Webster was dismayed nearly forty years later when he attended lectures at the Royal Institution and was not recognised as the architect of the lecture theatre.¹⁴² When Michael Faraday was summoned to advise on ventilating the Houses of Parliament, he acknowledged Webster as the architect of the lecture theatre and Webster made a point of writing

¹³⁵ Paul Weindling, “Science and sedition: how effective were the acts licensing lectures and meetings, 1795-1819?” *British Journal for the History of Science* 13 (1980): 139-153, on 142.

¹³⁶ Thomas Webster MS, Royal Institution Archives, RI CG4/6/1, hereafter *Manuscript for an autobiography*.

¹³⁷ Webster, *Manuscript for an autobiography*, 5.

¹³⁸ Webster, *Manuscript for an autobiography*, 14.

¹³⁹ RI MM, 26 April 1802, 3:8.

¹⁴⁰ Thomas Webster to his mother, 8 January 1802. Thomas Webster MS, Royal Institution Archives, RI CG4/6/1.

¹⁴¹ Thomas Garnett to Thomas Webster, 27 September 1800. Thomas Webster MS, Royal Institution Archives, RI CG4/6/1.

¹⁴² Webster, *Manuscript for an autobiography*, 6-8.

to thank him.¹⁴³ He also believed that it was he and not George Birkbeck (1776-1841) that should be credited with pioneering scientific education for workmen,¹⁴⁴ although Webster's contemporaries planned similar schemes, and Webster's own letter to Count Rumford in which he outlined his plan for a School of Mechanics credited Rumford with the idea.¹⁴⁵ This disappointment may have motivated him to write the manuscript for his autobiography, which was never published.

It was through his experience as an architect that Webster claimed expertise concerning the education of workmen. As an architect Webster had noticed that his workmen were frequently unable to do what he required of them, owing, he thought, to their "deficient" education.¹⁴⁶ Webster complained that his workmen could not understand drawings or directions, and that he had to contend with an attitude of "perverseness and conceit" that resulted from their ignorance,¹⁴⁷ a complaint similar to the accusations made against workmen in the Royal Institution *Prospectus*. Among the worst were the "inferior class of artificers" involved in the manufacture of fireplaces (Webster had worked with Rumford to improve fireplaces).¹⁴⁸

From previous experience, Webster insisted that he could improve workmen through a *controlled* form of scientific education. He believed a "little learning" was not dangerous if "judiciously delivered."¹⁴⁹ Webster's sentiments on the station of artisans in society matched those of Davy in his *Discourse Introductory* to his first course of lectures on chemistry in 1802. Webster did not wish to give workmen a higher social status through education – he wished to preserve the social order:

My idea was to make good mechanics – not to force them, like hot bed plants, out of the sphere in which they are most useful.¹⁵⁰

¹⁴³ Webster to Faraday, 23 May 1836, in Frank A. J. L. James (ed.) *The Correspondence of Michael Faraday* in six volumes (London: Institution of Electrical Engineers, 1991-2011): 2:360.

¹⁴⁴ Webster, *Manuscript for an autobiography*, 16.

¹⁴⁵ RI MM, 14 September 1799, 1:59.

¹⁴⁶ Webster, *Manuscript for an autobiography*, 10.

¹⁴⁷ Webster, *Manuscript for an autobiography*, 10.

¹⁴⁸ Webster, *Manuscript for an autobiography*, 10.

¹⁴⁹ Webster, *Manuscript for an autobiography*, 11.

¹⁵⁰ Webster, *Manuscript for an autobiography*, 11.

A workman's station in society was to be optimised, not made mobile. Note also Webster's argument that he would make workmen more "useful." Webster had designed his lecture theatre with a separate area for workmen, as "any attempt to destroy all distinction must be absurd."¹⁵¹ Webster included a gallery for the Royal Institution lecture theatre, in order to accommodate those who wished to be "less observed," or for those who for "obvious reasons" could not sit next to their employees.¹⁵² The gallery was to receive the "inferior mechanics" permitted to attend the lectures, and could be accessed separately from the street via a stone staircase.¹⁵³

The experiment to admit "artists" to the lectures for free required a Proprietor's approval for the artist to be eligible. Likewise, Webster's School was only to instruct a "limited number of mechanics," and these workmen were to be sent by the Proprietors.¹⁵⁴ George Finch, Earl of Winchilsea (1752-1826, the first President of the Royal Institution), Thomas Bernard, Viscountess Palmerston, and other unnamed Proprietors, sent workmen who were instructed by Webster.¹⁵⁵ These workmen practiced building chimneys and fireplaces, and were shown how to "cure a smoky chimney," an innovation that Rumford was famous for.¹⁵⁶ Rumford mentioned to Banks his intention to bring back with him to London from the Palmerston's country estate at Broadlands a "very clever bricklayer" who was "desirous of completing his education under my auspices at the Royal Institution" in January 1800, it was perhaps this very clever bricklayer to whom Webster may have been referring as one of Viscountess Palmerston's workmen.¹⁵⁷ Berman's history of Webster's School of Mechanics changed the original "Lady Palmerston," found in both Webster's 1837 manuscript and Henry Bence Jones' 1871 transcription of that manuscript,¹⁵⁸ to "the Palmerstons," removing female agency from the project.¹⁵⁹

¹⁵¹ Webster, *Manuscript for an autobiography*, 13.

¹⁵² Webster, *Manuscript for an autobiography*, 13.

¹⁵³ Webster, *Manuscript for an autobiography*, 13.

¹⁵⁴ Webster, *Manuscript for an autobiography*, 12.

¹⁵⁵ Webster, *Manuscript for an autobiography*, 13.

¹⁵⁶ Webster, *Manuscript for an autobiography*, 12-13.

¹⁵⁷ Count Rumford to Sir Joseph Banks, 22 January 1800, Royal Institution Rumford papers, file 11, box 1066.

¹⁵⁸ Bence Jones, *The Royal Institution*, 146.

An artisan audience at the Royal Institution would only be accepted if under the control of the upper classes, a point that was explicitly made by Webster when he spoke of his School for Mechanics:

In the house of the Institution itself the men would be under the eye of the higher classes, and any thing wrong would easily be put a stop to.¹⁶⁰

Webster's School for Mechanics, where workmen were "under the eye of the higher classes," has some similarities to the aims of the Panopticon of Samuel Bentham (1757-1831), later made famous by his brother Jeremy Bentham (1748-1832), designed to make workmen's techniques transparent, so that they might then be rationalised and managed by philosophers.¹⁶¹ The *Prospectus* too described the Royal Institution as a place where the philosopher could "behold and contemplate" all of the numerous operations of workmen, "simplify" those "tedious practices" into mechanical principles, and then retrain the workmen to perform the task according to the philosopher's instructions.¹⁶² Samuel Bentham was part of the Royal Institution's audience, he became a Proprietor on 23 March 1799 and his brother, Jeremy Bentham, became a life subscriber on the same date.¹⁶³ Another audience member who wanted to replace the apprenticeship system with a controlled form of scientific education was William Congreve (1772-1828), who became an annual subscriber on 10 February 1812.¹⁶⁴ Simon Werrett has shown that Congreve also looked upon craft traditions with "disdain" and had suggested a "grand national institution" to educate artisans under the eye of natural philosophers.¹⁶⁵

Samuel Bentham, Congreve and Webster were in agreement that artisans ought to be given a scientific education, and they believed that rather than giving artisans the impetus to rebel, this education would make artisans pliable by undermining

¹⁵⁹ Berman, *Social Change and Scientific Organization*, 27.

¹⁶⁰ Webster, *Manuscript for an autobiography*, 11.

¹⁶¹ Jeremy Bentham, in Miran Bozovic (ed.) *The Panopticon Writings*, (London: Verso, 1995), letter 1, 1787.

¹⁶² *Prospectus of the Royal Institution*, 9-10.

¹⁶³ RI MM, 23 March 1799, 1:6-7.

¹⁶⁴ RI MM, 10 February 1812, 5:270.

¹⁶⁵ Simon Werrett, "William Congreve's rational rockets," *Notes and Records of the Royal Society* 63 (2009): 35-56, on 40.

craft traditions,¹⁶⁶ traditions characterised in the Royal Institution *Prospectus* as full of “jealousy,” “envy” and “suspicion.”¹⁶⁷ Workmen were trained through an apprenticeship system, to be displaced by a scientific education, such as in the School for Mechanics proposed by Webster. However, unlike Samuel Bentham, Webster kept some elements from the apprenticeship system: he envisaged that workmen instructed in his School would then return to their own parts of the country to instruct others.¹⁶⁸ Furthermore, Webster planned that the mechanics in his school would, after learning geometry together, branch off into their various trades,¹⁶⁹ whereas Samuel Bentham wanted to “deconstruct” craft skills into “single operations” that were not particular to any trade.¹⁷⁰ It is worth also making a comparison here with Anderson’s Institution in Glasgow, where apprentices were sent to the lectures by their mentors and were given discount rates.¹⁷¹

Anna Maerker has also shown that an important way that Rumford’s scientific philanthropy differed from Jeremy Bentham’s Panopticism was its emphasis on “mutual visibility,” as opposed to the “unidirectional visibility” of the Panopticon.¹⁷² Rumford’s schemes relied on the desire to follow example, making mutual visibility a necessary requirement. The role of the power of example can be seen in the School of Mechanics, where workmen were to return to the countryside in order to instruct others, but it can also be seen among the visibility of the upper classes at the Royal Institution. Webster designed the Royal Institution’s lecture theatre so that the upper classes would be on display, to be observed by the workmen hidden up in the galleries, hidden among others who Webster explicitly said wished to be “less observed.”¹⁷³ Margaret Bernard also gave weight to the power of example in her Reports for the *Bettering Society*, where she assumed that the Bath repository

¹⁶⁶ William J. Ashworth, “‘System of Terror’: Samuel Bentham, accountability and dockyard reform during the Napoleonic Wars,” *Social History* 23 (1998): 63-79, on 68.

¹⁶⁷ *Prospectus of the Royal Institution*, 4.

¹⁶⁸ Webster, *Manuscript for an autobiography*, 13.

¹⁶⁹ RI MM, 14 September 1799, 1:63.

¹⁷⁰ Ashworth, “‘System of Terror,’” 67.

¹⁷¹ *Anderson’s Institution subscription lists, 1800/1801-1810/1811* (hereafter *Anderson’s Institution subscription lists*), Anderson’s College Records at the University of Strathclyde Archives, OB/5/1/2/2.

¹⁷² Maerker, “Political Order and the Ambivalence of Expertise,” 224.

¹⁷³ Webster, *Manuscript for an autobiography*, 13.

would be imitated across England, and the poor would eat soup provided they saw the rich eat it first.

Count Rumford communicated Webster's plan for the School for Mechanics, to ensure that mechanical knowledge was disseminated "among all ranks of people," at a meeting of the Managers on 14 September 1799, and the letter was transcribed into the Managers' Minutes.¹⁷⁴ The Earl of Winchilsea chaired the meeting, with Count Rumford, Sir John Cox Hippisley, Thomas Bernard, Richard Clark and Reverend Dr Glasse also present.¹⁷⁵ Sir Joseph Banks (1743-1820), who had presided over the meeting that founded the Royal Institution in his home in Soho Square on 7 March 1799, was absent. Despite Webster hearing that his idea was "favourably received," no reaction from the Managers to Webster's School for Mechanics is recorded in the minutes; the School was only mentioned in the transcript of Webster's letter. Webster's manuscript for his autobiography provides insight into what was not recorded in the Managers' Minutes. It was thought by those at the Managers' meeting on 14 September 1799 that Banks might have objections to the School, and so Webster was asked to take the Minute Book to him and "do what he could to win him over."¹⁷⁶ Webster thought that he had managed to persuade Banks to overcome his "political scruples" by outlining how much the arts would benefit if workmen were educated under his scheme.¹⁷⁷

Paul Weindling has argued that under the presidency of Banks the Royal Society of London was able to police science on a "more subtle and informal level," making the Seditious Meetings Acts of 1795 and 1799 more of a "last resort."¹⁷⁸ The example of Webster's School of Mechanics would suggest that Banks was able to informally police science at the Royal Institution too. Count Rumford had the School advertised in his report that was published in the *Journals of the Royal Institution*, twenty-one months later, on 13 June 1801.¹⁷⁹ Rumford's report had been approved at a Managers meeting, but it is notable that again, Banks was absent from this

¹⁷⁴ RI MM, 14 September 1799, 1:59, original emphasis.

¹⁷⁵ RI MM, 14 September 1799, 1:54.

¹⁷⁶ Webster, *Manuscript for an autobiography*, 11.

¹⁷⁷ Webster, *Manuscript for an autobiography*, 12.

¹⁷⁸ Weindling, "Science and Sedition," 147.

¹⁷⁹ Rumford, "Report, delivered before a Meeting of the Managers on 25 May 1801."

meeting.¹⁸⁰ Indeed, in this same meeting where Rumford's report was approved, it was recorded that Banks had ceased to be a Manager of the Royal Institution.¹⁸¹

Some of the Managers, unnamed by Webster, wanted to drop the School for Mechanics, and they wanted it "dropped as quietly as possible."¹⁸² The lack of references to the school in the Managers' Minutes after the meeting on 14 September 1799, when it was proposed, is telling of the Managers' silence on the subject. As Michael Gordin has argued, the minutes of scientific institutions could keep silent on sensitive arguments.¹⁸³ Webster had to yield to those who thought his School had a "dangerous political tendency," leading one unnamed person to demand of him "what he meant by instructing the lower classes in science?" and that if Webster persisted in his attempts to establish the School for Mechanics, he would "become a marked man!"¹⁸⁴

Such extreme unease with the idea of giving artisans a scientific education can be connected to Jan Golinski's argument that some in the upper classes feared the social order was being subverted by natural philosophers, with terrible imagined consequences, and that some of their peers in the upper classes were blindly building their own guillotine by lending their patronage to radical ideas about the place of scientific knowledge in society.¹⁸⁵ Simon Schaffer too has argued that some in the upper classes feared the "subversive appeal" of a lecturing natural philosopher, and thought natural philosophy had the potential to "break the bounds of social control" in both late-eighteenth century England and France.¹⁸⁶

The French Republicanism of the 1790s had been framed by men like Edmund Burke as a social experiment, an experiment endorsed by natural philosophers that ascribed no real human value to the lives of men.¹⁸⁷ William Hamilton Reid (fl.

¹⁸⁰ RI MM, 25 May 1801, 2:183.

¹⁸¹ RI MM, 25 May 1801, 2:182.

¹⁸² Webster, *Manuscript for an autobiography*, 14, original emphasis.

¹⁸³ Gordin, "The Importation of Being Earnest," 27.

¹⁸⁴ Webster, *Manuscript for an autobiography*, 14, original emphasis.

¹⁸⁵ Golinski, *Science as Public Culture*, 177 and 184.

¹⁸⁶ Simon Schaffer, "Natural Philosophy and Public Spectacle in the Eighteenth Century," *History of Science* 21 (1983): 1-43, on 26-27.

¹⁸⁷ Golinski, *Science as Public Culture*, 178.

1784-1827) in an alarmist publication referred to “experiments of democracy” that had “withered even in the hands of philosophers.”¹⁸⁸ Webster later described the School for Mechanics as “in fact intended as an experiment,”¹⁸⁹ the free tickets for artisans in 1802 were described as “an experiment,”¹⁹⁰ and the Royal Institution *Prospectus* used the laboratory as a metaphor for civil society.¹⁹¹ The use of the language of experiment in the Royal Institution projects for the scientific education of artisans may help to explain the failure to persuade those with “political scruples” that educating artisans in this manner was a desirable thing.

Although the Managers linked “useful” science with the instruction of workmen and the cooperation of wealthy manufacturers, their projects that involved these groups met with very little success, a conclusion that I make contra to that of Berman.¹⁹² On 27 February 1800, Webster had written to persuade Garnett to instead let him be his operator, as he became resigned to the fact that his School for Mechanics was “extremely uncertain if not improbable.”¹⁹³ Rumford’s Report spoke of the School for Mechanics in the future tense, expecting it to be running by the end of November 1801 at the earliest.¹⁹⁴ There is no indication that Webster’s ambition to give workmen a scientific education was realised other than his instructing a few of the workmen of Viscountess Palmerston and others in late January/early February 1800.

On 7 February 1803, the Managers of the Royal Institution issued a “limited number” of tickets at one guinea for “artists,” tickets that allowed access to the gallery only.¹⁹⁵ These tickets were suspended only a month later on account of the number of subscribers from wealthier groups who wanted to attend the lectures.¹⁹⁶ The same Managers’ Meeting recalled the blue transferrable tickets for artists,

¹⁸⁸ William Hamilton Reid, *The rise and dissolution of infidel societies in this metropolis* (London, 1800), 113-114.

¹⁸⁹ Webster, *Manuscript for an autobiography*, 12.

¹⁹⁰ RI MM, 1 February 1802, 2:235.

¹⁹¹ *Prospectus of the Royal Institution*, 6.

¹⁹² Berman, *Social Change and Scientific Organization*, 27.

¹⁹³ Thomas Webster to Thomas Garnett, 27 February 1800. Thomas Webster MS, Royal Institution Archives, RI CG4/6/1.

¹⁹⁴ Rumford, “Report, delivered before a Meeting of the Managers on 25 May 1801,” 27-28.

¹⁹⁵ RI MM, 7 February 1803, 3:82.

¹⁹⁶ RI MM, 7 March 1803, 3:92.

given to Proprietors as an experiment just over a year previously on 1 February 1802, again due to the “demand for places” at the lectures.¹⁹⁷ A select committee, composed of Lord Kinnaird, Thomas Bernard and James Peter Auriol,¹⁹⁸ had recommended the Managers recall artists’ blue tickets.¹⁹⁹ Rumford, who had left the Royal Institution and then Great Britain for good in May 1802, under a cloud of accusations of embezzlement and espionage, was not present to object.²⁰⁰ The committee acknowledged in its report that this would cause a “considerable diminution” of the utility of the Institution, which was supposed to diffuse knowledge among “individuals of that class” so that science could be applied to “the common purposes of life.”²⁰¹ As a remedy, the committee “suggested” holding “evening readings” in the months of October, November, and December (outside of scheduled lectures), and that the “exclusive” subject of these readings was to be the application of science to “trades, manufactures, agriculture, and domestic life.”²⁰² The Committee remarked that on account of their “public benefit and utility,” these evening readings would only need to break even, but they still anticipated a profit.²⁰³ There is no evidence that these evening readings ever materialised, or who was supposed to lead them.

Webster concluded that it was as if ‘the then Managers had resolved that the Institution should not be for “the application of science to the common purposes of life.”’²⁰⁴ In Webster’s eyes, the Royal Institution had abandoned its original purpose without giving “public notice,” and across the world the Institution had been getting the credit “of great liberality” when it was not deserved.²⁰⁵ Count Rumford had sent copies of the *Prospectus* to “foreign ministers” in June 1800.²⁰⁶ A transcription of a

¹⁹⁷ RI MM, 7 March 1803, 3:92.

¹⁹⁸ RI MM, 20 December 1802, 3:66. The select committee was chosen from the Managers by the Managers.

¹⁹⁹ “Royal Institution Report of Select Committee to the Managers 7th March 1803,” 3.

²⁰⁰ Berman, *Social Change and Scientific Organization*, 29-31.

²⁰¹ “Royal Institution Report of Select Committee to the Managers 7th March 1803,” 3-4.

²⁰² “Royal Institution Report of Select Committee to the Managers 7th March 1803,” 4, emphasis mine.

²⁰³ “Report of Select Committee to the Managers 7th March 1803,” 4.

²⁰⁴ Webster, *Manuscript for an autobiography*, 15, original emphasis.

²⁰⁵ Webster, *Manuscript for an autobiography*, 14.

²⁰⁶ RI MM, 9 June 1800, 2: 97. The names of the foreign ministers to whom Count Rumford sent the *Prospectus* are not listed.

letter to Thomas Jefferson, then president of the American Philosophical Society and Vice President of the United States, further hints at the Managers' efforts to give the Royal Institution a global reputation.²⁰⁷

On Saturday 16 March 1805, the *Prospectus* of the Royal Institution appeared in the British colonial newspaper, the *Bombay Courier*.²⁰⁸ Thomas Garnett was still listed as the Professor of Natural Philosophy and Chemistry, although he had died on 28 June 1802, and there was no mention of Humphry Davy in the *Prospectus* either. The press of the Royal Institution had the *Prospectus* reprinted in 1803, with the names of the Managers and Visitors updated and Humphry Davy named as Professor of Chemistry. James Peter Auriol (then in the office of Secretary) sent the *Prospectus* to the Governor of Bombay on 28 June, but the year was not specified and perhaps Auriol sent the *Prospectus* to India just before the new edition was prepared.²⁰⁹ Nevertheless, the 1803 *Prospectus* only updated the names of those who managed the Institution, and the description of the purpose of the Royal Institution was exactly the same as that provided by Hippiusley and Sullivan in 1799. In support of Webster's accusation, the *Prospectus* that appeared in the *Bombay Courier* did not reflect the Royal Institution's activities in 1805. In his lecture on 3 March 1810, Davy pointed out "the object which at first was only secondary, that of teaching the principles of the sciences, and the applications of the sciences, by Courses of Public Lectures, soon became the prime object."²¹⁰ The secondary object was the lectures, with their upper-class female audience.

3.5 Conclusion

In his lecture on 3 March 1810, Davy lamented that through the failure of the Model Room, a failure that he attributed to the manufacturers as opposed to the

²⁰⁷ RI MM, 9 June 1800, 2: 99-100. The Managers declared an intention of sending a copy of the *Prospectus* to the following: Dartmouth College; American Academy of Arts and Sciences, Cambridge, Massachusetts; Harvard University; Rhode Island College; Yale College; Columbia College, New York; Nassau College, New Jersey; American Philosophical Society, Philadelphia; University of Philadelphia; University of Maryland; and the College of William and Mary, Virginia.

²⁰⁸ John Coxe Hippiusley and Richard Sullivan, "Prospectus of the Royal Institution of Great Britain," *Bombay Courier*, 16 March 1805, 3b-4c.

²⁰⁹ RI MM, 30 December 1805, 4: 128-129.

²¹⁰ Davy, *3 March 1810 lecture*, 11.

philosophers, “the principles of science, and the principles of the arts, instead of being harmoniously united, were placed in this respect in a state of hostility.”²¹¹ Davy’s opinion of the relationship between industry and science in 1810 chimes with Pictet’s war between scientific and manual industry. The Royal Institution hoped to improve the relationship between the upper and lower classes in the wake of the French Revolution, a relationship cast as being mutually “useful.” Yet as MacDonald has pointed out, wealthy manufacturers would have gained very little from attending the Royal Institution.²¹² The projects to give poorer workmen scientific instruction at the Royal Institution, like the School for Mechanics, were in turn stymied by anxiety.

The Royal Institution hoped that both the upper classes and lower classes would be useful to one another, on terms set by the upper classes. Workers were to be made more productive, and therefore more useful, through scientific instruction (a scheme that was not necessarily in the workers’ best interest). The aristocracy were likewise keen to prove themselves useful and re-fashioned themselves as a service élite. Supporting the Royal Institution was one of the ways in which women could be recognised as part of Britain’s service élite, and this explains the attraction of the Royal Institution to the most active of the distinguished patronesses, Margaret Bernard and Viscountess Palmerston.

Jon Klancher wrote that the Royal Institution had a “remarkable and still partly obscure reversal of its original purposes.”²¹³ The reversal in the Royal Institution’s purposes has been noted before,²¹⁴ and Berman in particular made use of Webster’s autobiographical manuscript to illustrate these changes.²¹⁵ But by

²¹¹ Davy, *3 March 1810 lecture*, 8.

²¹² MacDonald, *Crossroads of Enlightenment*, 374.

²¹³ Klancher, *Transfiguring the Arts and Sciences*, 54.

²¹⁴ Altick, *The Shows of London*, 387; Frank A. J. L. James, “Introduction” in Frank A. J. L. James (ed.) *The Common Purposes of Life: Science and Society at the Royal Institution* (Aldershot: Ashgate, 2002): 1-16, on 6; Golinski, *Science as Public Culture*, 191; David Knight, “Establishing the Royal Institution: Rumford, Banks and Davy” in Frank A. J. L. James (ed.) *The Common Purposes of Life: Science and Society at the Royal Institution* (Aldershot: Ashgate, 2002): 97-118, on 107 and Robert Siegfried, “Davy’s ‘Intellectual Delight’ and his Lectures at the Royal Institution,” in Sophie Forgan (ed.) *Science and the Sons of Genius: Studies on Humphry Davy* (London: Science Reviews Ltd., 1980): 177-200, on 179.

²¹⁵ Berman, *Social Change and Scientific Organization*, 27.

considering the role of the distinguished patronesses at the Royal Institution, I have brought further clarity to that reversal. The failure to get manufacturers and workmen involved with the Royal Institution left a space for a new kind of audience, one not initially given the Managers' attention – an audience drawn from women of the upper classes.

The Royal Institution pledged subscribers would be contributing to its useful projects, projects that offered to stabilise a social order that seemed in peril. Margaret Bernard and Viscountess Palmerston were already involved in projects of scientific philanthropy similar to those that the Royal Institution attempted. The Royal Institution was an opportunity for Margaret Bernard and Viscountess Palmerston to further their “noble careers of doing good.” These women, the most active of the Royal Institution's distinguished patronesses, worked to encourage other women to subscribe to the institution. They were successful at doing so. Viscountess Palmerston and Margaret Bernard were “rulers of opinion:” going to a lecture at the Royal Institution became a “fashionable” thing to do.

Chapter 4 “A very incongruous union:” fashion and chemistry

4.1 Introduction

But in estimating the probable usefulness of this institution, we must not forget the public advantages that will be derived from the general diffusion of a spirit of experimental investigation and improvement among the highest rank of society.

When the rich shall take pleasure in contemplating and encouraging such mechanical improvements as are really useful, good taste, with its inseparable companion, good morals, will revive:-- rational economy will become fashionable:-- industry and impunity will be honoured and rewarded and the pursuits of all the various classes of society will then tend to promote public prosperity.¹

These two paragraphs concluded the Royal Institution’s *Prospectus*. However, they were added after 21 January 1800.² When they first drafted the *Prospectus* of the Royal Institution, Sir John Coxe Hippisley and Richard Sullivan had not given much attention to how the Royal Institution would be used by the upper classes, considering instead how it might be used to make the lower classes more productive in their labour. When it became apparent that manufacturers and workmen might not be persuaded to be involved with the new Institution, the Managers were forced to be more explicit about the role of the upper classes, which were more enthusiastic. The lower classes were useful through their labour – those in “the highest rank of society” were not expected to get their hands dirty. Instead, they would be seen to “take pleasure in contemplating and encouraging mechanical improvements,” and therefore diffuse a “taste” for science among their peers. By being seen to encourage experimental investigation, the upper classes would be strengthening their station as a service élite.

¹ *Prospectus of the Royal Institution*, 15.

² Compare the prospectuses dated 21 January 1800, RI/MS/AD/02/A/01/A in Box 326, which are missing the above quoted paragraphs, with the prospectuses published in 1800 but undated, RI/MS/AD/02/A/01/A in Box 261, where the above quoted paragraphs have been added to the end.

The word contemporaries most often used to describe the audience at the Royal Institution was fashionable. In the late-eighteenth century, fashion was seen as a source of female power.³ Rulers of opinion with the power to control fashion and taste could be female, as Marc-Auguste Pictet had understood. A small number of fashionable women could diffuse “a spirit of experimental investigation and improvement” to their peers through the power of example.

Through appointing distinguished patronesses, the Royal Institution was able to capitalise upon the pre-existing networks of these rulers of opinion and the institution was rapidly assimilated into “the season.” By 1803, the Royal Institution’s income had become reliant on annual subscriptions, around half of which were made by women. Among the Managers, Thomas Bernard in particular became aware of this, so Bernard directed the Royal Institution’s finances towards expanding the seasonal lecture programme as opposed to maintaining the Model Room. The Managers further capitalised upon female relationships by offering discounted lecture rates to women who were friends or daughters of existing subscribers. These women used the Royal Institution as they used the theatre and the Opera House, as what Rebekah Higgitt and Charles Withers have described as a “social and cultural resource.”⁴

Yet the Royal Institution also offered something additional to the other venues of the season. The Royal Institution aimed to “promote public prosperity,” and there is evidence that some of the distinguished patronesses wanted to use science as a means to this end. With Davy’s instigation of a mineralogical collection in November 1803,⁵ and his delivery of geological lectures from 1805,⁶ the Royal Institution was also a source of information on mineralogy. Mineralogy was of particular interest to women whose wealth was tied to their country estates, although Frank James has refuted any “straightforward relationship” between geology and the fulfilment of

³ Donald, *The Age of Caricature*, 86-87.

⁴ Higgitt and Withers, “Science and Sociability,” 25.

⁵ RI MM, 28 November 1803, 3:167.

⁶ RI MM, 14 January 1805, 4:9.

landowners' ambitions with regards to mineral exploitation.⁷ One distinguished patroness, Lady Hippisley, wife of the Royal Institution Manager Sir John Coxe Hippisley, had her own chemical laboratory and practiced mineralogy. Lady Hippisley had much in common with Morris Berman's improving landlords, concerned as they were with "estate exploitation," except she was female.⁸ Another distinguished patroness, Georgiana, the Duchess of Devonshire, had a long-standing interest in chemistry and assembled her own mineralogical collection. The Duchess had also helped to court political and financial support for Thomas Beddoes's Medical Pneumatic Institution, an institution that opened in Bristol in 1794 and that was an important prototype for the Royal Institution with regards to its laboratory and Davy's research therein.⁹

With its promise of usefulness, the Royal Institution became a means for women to join the ranks of the service élite. Women had a particular role to play, as contemporaries set store in the ability of upper class women to direct fashion and taste, and thus lead the rest of society by example. The Institution's *Prospectus*, quoted above, made "good taste" the "inseparable companion" of "good morals." In her extensive study of satirical portraits in the Reign of George III, Diana Donald argued "the resistance to all female influence in society and contempt for fashion" existed "in tension with the countervailing zest for 'improvement.'"¹⁰ Both forces were seen at the Royal Institution in its first decade: women's patronage of the Institution was welcomed as part of the "zest for improvement." However, for men like Henry Brougham and Francis Horner, the degree of influence women had at the Royal Institution was a cause for concern. Francis Horner said Davy's audience was "assembled by the influence of fashion merely; and fashion and chemistry form a very incongruous union."¹¹ It was the tension that Donald articulated, a welcoming

⁷ Frank A. J. L. James, "Negative Geology: Humphry Davy and forming the Royal Institution's Mineralogical Collection, 1803-1806," *Earth Sciences History* 37 (2018), forthcoming.

⁸ Berman, *Social Change and Scientific Organization*, xxiv.

⁹ Frank A. J. L. James, "'the first example...of an extensive scheme of pure scientific medical investigation': Thomas Beddoes and the Medical Pneumatic Institution in Bristol, 1794 to 1799," The Eighth Wheeler Lecture given at the Royal Institution, 12 October 2015, published as The Royal Society of Chemistry Historical Group Occasional Paper No. 8 (November 2016).

¹⁰ Donald, *The Age of Caricature*, 80.

¹¹ Horner, 31 March 1802, *Memoirs of Francis Horner*, 109.

of women's support of "useful" knowledge while at the same time resisting female influence, that made the union of fashion and chemistry at the Royal Institution seem "incongruous" to Horner. Lecturers began to segregate a fashionable part from a scientific part of their audiences in order to check female influence.

4.2 Chemistry and the Season

Thomas Garnett, the Royal Institution's first lecturer, played a key role in encouraging the Managers to welcome an upper-class female audience. Before his arrival in London, Garnett had lectured to female audiences at Anderson's Institution in Glasgow. In a letter to the Managers of the Royal Institution, in which he gave an outline for his lectures, Garnett had copied from an earlier lecture course proposal that he had given to the Managers of Anderson's Institution in Glasgow three years previously.¹² An itinerant lecturer, only employed in Glasgow in the winter, Garnett had also proposed to give the same course of lectures in Birmingham, where a ticket would be transferable and admit either one man and a lady or two ladies.¹³ In Glasgow, Garnett's tickets were also transferrable and would admit either one man and a lady or two ladies. At the Royal Institution, Garnett prompted the Managers to invite ladies to subscribe, as the "fair sex" had constituted a large and observant part of his audience in Glasgow.¹⁴ Garnett brought with him to London's West End the idea of women as an audience for scientific lectures.

Unlike the advertisements for lectures at Anderson's Institution that described courses as "particularly interesting to the Ladies,"¹⁵ the Royal Institution *Prospectus*,

¹² Compare RI MM, 23 December 1799, 1:78 with *Transcript of the Minutes of Anderson's Institution, 1796-1799*, 24 October 1796, 65, (hereafter *Anderson's Institution Minutes, 1796-1799*), Anderson's College Records at the University of Strathclyde Archives, OB/1/2/1.

¹³ Thomas Garnett to James Watt senior, 24 January 1797, including "Proposals for two courses of lectures, one on natural philosophy, the other on chemistry," Library of Birmingham, papers of James Watt and Family, MS 3219/4/29/42. With thanks to Frank James for providing this reference. Judging from the lack of advertisements for any lectures by Garnett in Birmingham in the newspapers, it appears these lectures did not take place.

¹⁴ RI MM, 27 January 1800, 1:93.

¹⁵ *Anderson's Institution Minutes, 1796-1799*, 24 October 1796, 66.

prepared before Garnett's arrival in London in December 1799,¹⁶ had not targeted a female audience. An even earlier version of the *Prospectus* had targeted "young gentleman intended for civil and military service," the sons of the service élite, not the daughters.¹⁷ It was not that the Managers' of the Royal Institution were simply hostile towards women subscribing. Rather, women from the upper classes, as opposed to workmen and manufacturers, had not been seen as the best means to the end of useful science. At a Managers' meeting before Garnett's arrival in December 1799, Count Rumford, in a motion seconded by Thomas Bernard, had proposed that ladies be admitted as both Proprietors and Subscribers.¹⁸ Rumford had also told Viscountess Palmerston that he might "make" his daughter subscribe to the Royal Institution.¹⁹ At a Managers' Meeting on 14 September 1799,²⁰ it was resolved that the words "or her" be added to the Royal Institution Charter in order to reflect that both men and women could be Proprietors.²¹ But given that this was a later addition to the Charter, and that women were absent from the earliest draft of the Institution's *Prospectus*, it can be concluded that women were not part of the first targeted audiences for the Royal Institution. Garnett, however, did expect women to form a large part of his audience. The later addition of the paragraphs to the *Prospectus* that spoke of diffusing "a spirit of experimental investigation and improvement among the highest rank of society" was made *after* 21 January 1800, around the time the distinguished patronesses were appointed, and after Garnett's arrival in London.

Garnett played an important role in opening the Royal Institution to women from the inside, but it was the distinguished patronesses, appointed on 17 February 1800, who gathered its female audience.²² Through the distinguished patronesses, the Royal Institution's subscription system was adapted to the pre-existing

¹⁶ Thomas Garnett's arrival in London was noted in the Managers' Minutes on 23 December 1799, see RI MM, 23 December 1799, 1:75.

¹⁷ Berman, *Social Change and Scientific Organization*, 83-85.

¹⁸ RI MM, 23 March 1799, 1:9.

¹⁹ Count Rumford to Viscountess Palmerston, 2 February 1799, Royal Institution Rumford papers, file 1, box 1064. I have found no evidence that Rumford's daughter Sally did subscribe.

²⁰ RI MM, 14 September 1799, 1:55.

²¹ *Prospectus and Charter of the Royal Institution of Great Britain* (London: 1800), RI/MS/AD/02/A/01/A, box 326, on page 53.

²² RI MM, 17 February 1800, 1:129.

networks of upper-class women in London, and this was the secret to the Institution's success in attracting its female audience. For a woman, unless they had a husband or father who was a Proprietor, being admitted to the lectures in practice meant calling on, for example, Viscountess Palmerston at her London residence in Hanover Square and requesting admission. Distinguished patronesses had the power to block women from attending the lectures if there appeared to be "material exception."²³ There were never more than 12 distinguished patronesses, most of whom were members of the nobility or gentry. In contrast, male annual subscribers could be proposed by any one of the hundreds of other male annual subscribers or Proprietors (although only Managers were supposed to propose Proprietors).²⁴ In their study of the female audience at the British Association for the Advancement of Science (BAAS) meetings, Higgitt and Withers concluded that "social status and polite manners" were more important for women's acceptance at the meetings relative to their male counterparts, a conclusion that is also borne out at the Royal Institution in its first decade.²⁵ This conclusion is perhaps to be expected, as since modern science began to emerge, women in England had used their noble status as leverage to participate.²⁶

Lectures at the Royal Institution were timed to coincide with "the Season," when the population of the West End swelled with the élite who resided outside of London on their country estates in the latter half of the year, when Parliament was closed. Viscountess Palmerston, whose husband was a Whig peer, wrote to her son about making her first appearance "of the Season" at the Royal Institution in late June 1802.²⁷ By May 1807, a Mrs Fiske saw fit to conclude her advertisement for her business in the *Morning Post*, the "Rooms of Fashion" at 81 New Bond Street (round the corner from the Royal Institution), by referring to her "several complete

²³ RI MM, 2 January 1804, 3:186.

²⁴ See Chapter 2, "Methodology," 60.

²⁵ Higgitt and Withers, "Science and Sociability," 25.

²⁶ Schiebinger, *The Mind Has No Sex?*, see chapter "Noble Networks."

²⁷ Viscountess Palmerston to Henry Temple, 27 June 1802, BR21/8/25.

dresses for the Royal Institution and Exhibitions, well worth the attention of Ladies in general.”²⁸ The Royal Institution lectures had become part of the season.

A large part of the attraction of the Royal Institution was that it became a further venue in which to maintain and make new relationships in the season. The season was the time to strengthen networks, to scout for matrimonial alliances, and to be seen among the “right” crowd. In April 1800, Louisa Dorothea Clinton, writing to her older sister Maria Josepha, Lady Stanley, described the Royal Institution as “an excellent centre for meeting one’s friends” and lamented that all of the lectures were not in the evening, as she disliked morning assemblies.²⁹ Indeed, Louisa wrote that Maria’s mother-in-law and sisters-in-law³⁰ had confessed to her “the certainty of having six more parties every week was the sole cause of their subscription,”³¹ and Clinton reckoned the same was true for two thirds of the audience. Clinton’s guess shows that it is possible that most women used the Royal Institution not to study science but rather, like Higgitt and Withers have described the meetings of the British Association for the Advancement of Science, as a “social and cultural resource.”³²

When in town for the season in 1805, Mary Ann Gilbert (later wife of Davies Giddy) went to view the Earl of Ashburnham’s collection of paintings with her mother,³³ went to dances, and hosted and visited family and friends.³⁴ However, Gilbert remarked that “our chief amusement this far has been the lectures at the Royal

²⁸ Mrs Fiske, “Mrs. Fiske has the honour of announcing to the Nobility and Ladies in general,” *Morning Post*, 1 May 1807, 1c.

²⁹ Louisa Dorothea Clinton to Maria Josepha Stanley, April 1800 (undated), *The Early Married Life of Maria Josepha Stanley*, 196.

³⁰ Margaret, Lady Stanley (née Owen, 1742-1816, the mother-in-law of Maria) and Maria’s sisters-in-law, the three Miss Stanleys, subscribed to the Royal Institution on 17 March 1800. They made the express wish that they wanted to subscribe for that season only, see RI MM, 17 March 1800, 2:22.

³¹ Louisa Dorothea Clinton to Maria Josepha Stanley, April 1800, *The Early Married Life of Maria Josepha Stanley*, 196.

³² Higgitt and Withers, “Science and Sociability,” 25.

³³ Mary Ann Gilbert, 12 March 1804, *Journal kept by Mary Ann Gilbert mainly while in Sussex, London and Kent, November 1803 - September 1804*, part of the Enys papers (hereafter EN), held at the Cornwall Record Office, EN/1917. Although the journal is catalogued as finishing in September 1804, it continues into 1805. For example, Mary Ann Gilbert recalls being taken by a Mrs Smith to hear King George III open parliament on 15 January 1805.

³⁴ Mary Ann Gilbert, 3 January 1804, *Journal EN/1917*.

Institution.”³⁵ A sense of the Royal Institution as part of the season can also be drawn from Lady Stanley’s correspondence. Besides attending one of Davy’s Royal Institution lectures (from which she came out “none the wiser”),³⁶ Lady Stanley went to watercolour exhibitions, and on 3 May 1809 she attended two assemblies and one concert in one night.³⁷ A ball at Lady Nelson’s promised to be a “fine squeeze.”³⁸ Before Lady Stanley had even arrived in London for the Season in 1811, fellow Royal Institution subscriber and Davy’s future wife, Jane Apreece, had proposed to “go shares in an opera box.”³⁹ An impression is built of a season full of packed and even uncomfortable assemblies: in Jane Austen’s *Sense and Sensibility* (1811), the Miss Dashwoods find themselves during the season at a party “quite full of company, and insufferably hot.”⁴⁰

The frequency of these activities demanded that the season be confined to a small geographical space – London’s West End. Frank James has shown how Sir Joseph Banks took advantage of the geographical proximity of the house of the Royal Institution on Albemarle Street to the Board of Agriculture on nearby Sackville Street, requesting that Davy carry out experiments on behalf of the Board in the laboratory of the Royal Institution.⁴¹ Albemarle Street however also happened to be housed deep within fashionable territory, and its location made it easy for an upper-class female audience to appropriate the Royal Institution to their purposes. Those Subscribers who gave their addresses resided in close proximity to the Royal Institution in the West End of London, in the neighbourhoods of Mayfair, St James’s, and the more distant Marylebone and Bloomsbury. These areas of London

³⁵ Mary Ann Gilbert, January 1805, *Journal EN/1917*.

³⁶ Maria Josepha Stanley to Louisa Dorothea Clinton, 9 March 1809, *The Early Married Life of Maria Josepha Stanley*, 314.

³⁷ Maria Josepha Stanley to Louisa Dorothea Clinton, 3 May 1809, *The Early Married Life of Maria Josepha Stanley*, 316.

³⁸ Maria Josepha Stanley to Louisa Dorothea Clinton, 3 May 1809, *The Early Married Life of Maria Josepha Stanley*, 316.

³⁹ Maria Josepha Stanley to Serena Holroyd, 26 February 1811, *The Early Married Life of Maria Josepha Stanley*, 332. The editor of the collection has wrongly dated many of Stanley’s 1811 letters as 1812. A footnote by the editor of Stanley’s letters on page 343 says Apreece married Davy in 1813 when in fact they married on 11 April 1812, see anonymous, “Married,” *Morning Chronicle*, 13 April 1812, 3e.

⁴⁰ Jane Austen, *Sense and Sensibility* in three volumes (London, 1811), chapter 6, 2:89. Austen started work on *Sense and Sensibility* in 1793.

⁴¹ James, “Agricultural Chymistry is at present in it’s infancy,” 380.

had expanded after aristocratic landowners had leased their land to speculative builders, who had in turn built and leased properties. Roy Porter, in his social history of London, has shown how the fashionable upper classes favoured the West End for their town residences.⁴² Out of 703 given addresses of female audience members, 539 addresses were listed in Boyle's *Court Guide* for the year 1803 – over three in four women gave a fashionable address.⁴³

Boyle's *Fashionable Court Guide, or Town Visiting Directory* cost three shillings and is a small book that would have been easy to carry on your person when out visiting (see Figure 4 below). The first half of Boyle's guide lists the addresses of fashionable people by surname, but the second half of the book was an alphabetical list of fashionable streets, thus one could know the fashionable people who lived on your street or in your neighbourhood. Three quarters of the female audience who gave an address lived on a fashionable street listed in Boyle's Court directory, and other addresses, notably Russell Square, had not been built when the Court Guide was published in 1793.



Figure 4. Patrick Boyle, *The Fashionable Court Guide, or Town Visiting Directory, for the Year 1793* (London: 1793), British Library, RB.23.a.17986. Shown against library card for scale.

⁴² Roy Porter, *London: A Social History* (London: Penguin, 2000), 117-136.

⁴³ Patrick Boyle, *Second Edition of Boyle's Court and Country Guide, and Town Visiting Directory* (London: 1803), British Library, P.P.2506.sdc.

The poet Robert Southey mocked the visiting network, essential to maintain ties in London's fashionable world, in his satire on English life, *Letters From England* (1807):

The system of visiting in high life is brought to perfection in this country. Were a lady to call in person upon all the numerous acquaintance whom she wishes sometimes to crowd together at her grand parties, her whole time would be too little to go from door to door.⁴⁴

Although derisive, Southey's description nonetheless gives a sense of the sheer scale of contemporary upper-class female social networks in West End London: calling cards had to be used as the visiting schedule was packed. The Royal Institution was assimilated into the West End visiting network of cards and coaches – it appears lecture tickets had to be delivered in batches to different districts. In 1805, when the number of annual subscriptions reached a peak,⁴⁵ the increased number of subscriptions forced the delivery of "cards" (tickets for the lectures) to be divided from six into seven districts.⁴⁶ The peak in annual subscriptions in 1805 also saw the introduction of a one-way system for carriages on Albemarle Street on lecture days, where coachmen were to "set down with their horses towards Piccadilly, and take up towards Grafton Street."⁴⁷

In Jane Austen's *Sense and Sensibility* (1811), the heroine Miss Dashwood's time in Town is devoted to calling upon friends, and is geographically confined to moving between Berkley Street, Conduit Street, Park Street and Harley Street.⁴⁸ In Virginia Woolf's *Orlando* (1928), the protagonist is forced in the early-nineteenth century to sell her old house in Blackfriars and buy a new house in Mayfair "in the heart of the fashionable world" to keep her place in society.⁴⁹ Although the addresses of Davy's female audience show that women did not have to be immediate neighbours of the

⁴⁴ Robert Southey, *Letters from England by Don Manuel Alvarez Espriella*, in three volumes (London, 1807), 3:307.

⁴⁵ See Chapter 2, "Methodology," Graph 2, 70.

⁴⁶ RI MM, 14 January 1805, 4:9.

⁴⁷ RI MM, 14 January 1805, 4:10.

⁴⁸ A "real" Miss Dashwood subscribed to the Royal Institution lectures on 17 March 1800, on the recommendation of Mrs Sullivan, see RI MM, 17 March 1800, 2:22.

⁴⁹ Virginia Woolf, *Orlando*, (New York: Harcourt, Brace and Co., 1928), 273.

distinguished patronesses to be recommended to the Royal Institution, the majority of given addresses were geographically confined to London's fashionable streets.

Financial problems in 1803 brought about a re-evaluation of the Royal Institution's activities to better target the audience that was then bringing in the most money – the Annual Subscribers. Just as they were suspending artisan tickets due to lack of space in the lecture theatre, the Managers were reckoning that they could accommodate 400 "lady subscribers" easily.⁵⁰ These lady subscribers valued the lectures, and so a Select Committee proposed that the primary object of the Managers should be "the greatest practicable improvement and extension of the lectures," whereas "the supply of useful models of every kind" was relegated to second place.⁵¹ This re-orientation was reflected in the allocated budget of £500 per year for the lectures, as opposed to £200 per year to provide useful models.⁵² Morris Berman did not discuss the reorientation of the budget towards the lectures. Indeed, Berman gave little attention to the lecture programme as opposed to the Model Room and mineralogical collection, a focus due perhaps to his emphasis on Proprietors as opposed to Annual Subscribers.⁵³ Robert Siegfried, whose focus was on the lectures, did however recognise that it was Annual Subscribers who "paid the bills" by 1804.⁵⁴

On 17 January 1803, the Managers passed two resolutions that further capitalised on the existing female relationships of the season: women could bring along female friends and daughters to the lectures at a reduced cost.⁵⁵ Women who subscribed to the lectures for two guineas for the season could also bring along one daughter.⁵⁶ Sir Gilbert Elliot remarked on the large number of "matrons with young daughters" at Davy's chemical lectures in 1802.⁵⁷ Viscountess Palmerston took her daughters Frances and Elizabeth to the lectures with her in 1801, although her

⁵⁰ RI MM, 7 March 1803, 3:100.

⁵¹ RI MM, 7 March 1803, 3:97.

⁵² RI MM, 7 March 1803, 3:101.

⁵³ Berman, *Social Change and Scientific Organization*, 75-99.

⁵⁴ Siegfried, "Davy's 'intellectual delight' and his lectures at the Royal Institution," 179.

⁵⁵ RI MM, 17 January 1803, 3:74.

⁵⁶ RI MM, 17 January 1803, 3:74.

⁵⁷ Gilbert Elliot to Lady Minto, 27 February 1802, *Life and Letters of Sir Gilbert Elliot*, 3:240.

daughters' attendance were not recorded in any official lists.⁵⁸ Daughters who were brought to the Royal Institution in this manner add to the dark number in the prosopographical study.

One of the advantages of using prosopography is the ability to organise seemingly insignificant pieces of information in a searchable database, so that connections that otherwise might remain hidden are revealed. At least 325 of the 844 women identified, roughly two-fifths of the audience, subscribed to the lectures with a female companion, as determined through sharing a given address or family name and date of subscription.⁵⁹ For example, Eleanor Anne Porden attended the lectures with her mother, but a Miss Brown also gave the Porden's home address, 59 Berners Street, as her given address.⁶⁰ Miss 'Polly' Brown, as Eleanor Anne Porden called her, was from York and had previously visited the Pordens in Berners Street at the end of 1806 until the beginning of 1807, and stayed with them again in 1812.⁶¹ Prosopography has its limits: Mary Berry and Catherine Fanshawe did not share the same address or family name, but their papers reveal a friendship otherwise hidden in the prosopographical analysis.⁶²

After 1803, when the lecture courses were "considerably augmented" to target female subscribers, the Royal Institution diverged from the path of Anderson's Institution and was becoming the prototype for what Jon Klancher has termed the "arts-and-sciences institutions" of the Romantic age.⁶³ In the lecture season of 1804, Humphry Davy lectured on chemistry,⁶⁴ John Dalton (1766-1844) lectured on mechanics and physics,⁶⁵ William Allen lectured on natural philosophy,⁶⁶ James

⁵⁸ Count Rumford to Sally Rumford, 2 March 1801, quoted in W. J. Sparrow, *Knight of the White Eagle. A Biography of Sir Benjamin Thompson, Count Rumford (1753-1814)* (London: Hutchinson and Co., 1964), 124.

⁵⁹ Women known to have subscribed with a female companion are shaded in grey, see Appendix.

⁶⁰ RI MM, 12 January 1812, 5:262.

⁶¹ Eleanor Anne Porden, "An account of the loves of Peter Plod, and Polly Brown," D3311/25/2/1. Miss Brown is also mentioned in a letter to unknown recipient from Porden, 18 July 1812, D3311/25/1/6.

⁶² Catherine Fanshawe and another Miss Fanshawe were listed as "old subscribers" to the Institution in 1812, see RI *Ledger of Receipts 1812*, 1:15. The Duchess of Devonshire recommended Miss Berry to the lectures on 19 March 1800, see RI MM, 19 March 1800, 2:26.

⁶³ Klancher, *Transfiguring the Arts and Sciences*, 1.

⁶⁴ RI MM, 5 December 1803, 3:172 and 9 January 1804, 3:190.

⁶⁵ RI MM, 5 and 19 December 1803, 3:172 and 180.

Edward Smith lectured on botany,⁶⁷ but also John Opie (1761-1807) lectured on painting,⁶⁸ Reverend William Crowe (bap. 1745, d. 1829) lectured on architecture, history and poetry,⁶⁹ and Reverend John Hewlett lectured on belles lettres,⁷⁰ to name but a few examples. Hewlett was buried in the catacombs beneath the chapel of the Foundling Hospital, on account of his service to that charity, a further example of the relationship between the Royal Institution and the Foundling Hospital owing to the influence of the Bernards.⁷¹ Both institutions could be described as “contexts in which fashion and charity could converge” to strengthen the image of a service élite.⁷²

Thomas Bernard oversaw the expansion of the lecture courses, seeking out potential lecturers and engaging those lecturers too.⁷³ As Frank James has pointed out, Bernard’s decision to diversify the lecture programme prompted Sir Joseph Banks to write to Count Rumford in June 1804 to complain that the Royal Institution was being “perverted” by the “enemy.”⁷⁴ The Royal Institution no longer aimed at uniting men of science and manufacturers, and was instead trying to cater to what the Managers believed to be the interests of their female, upper-class audience. Indeed, the Managers turned down solicitations to give lectures on anatomy, veterinary science and physiology, on the grounds that such subjects would offend the sensibilities of their female audience.⁷⁵ A proposal to avoid offending the

⁶⁶ RI MM, 5 December 1803, 3:172 and 9 January 1804, 3:190.

⁶⁷ RI MM, 16 and 23 January 1804, 3:199 and 207.

⁶⁸ RI MM, 16 and 23 January 1804, 3:199 and 204.

⁶⁹ RI MM, 2 January 1804, 3:186; 16 January 1804: 3:197 and 199; 23 January 1804, 3:203; 14 January 1805, 4:9; 4 February 1805, 4:23; 17 June 1805, 4:93; 25 March 1805, 4:48; 24 February 1806, 4:149; 2 February 1807, 4:228; 16 Nov 1807, 4:280; 23 November 1807, 4:283. See also the notice of Crowe’s lectures in Thomas Frognall Dibdin’s *The Director* 2 (18 April 1807): 25. Reverend Crowe held the office of Public Orator at New College, University of Oxford, and while he praised Crowe’s lectures, Thomas Frognall Dibdin made the not altogether complimentary remark, “Perhaps no man who wore the academic gown so long and so constantly, ever suffered so little of the rust of rural life to be worn off.” See Dibdin, *Reminiscences*, 1:245.

⁷⁰ RI MM, 23 January 1804, 3: 203-4.

⁷¹ John Brownlow, *The History and Objects of the Foundling Hospital: With a Memoir of the Founder* (London, 1865; 3rd ed.) 83.

⁷² Sarah Lloyd, *Charity and poverty in England, c. 1680-1820: wild and visionary schemes* (Manchester: Manchester University Press, 2009), 241.

⁷³ RI MM, 2 January 1804, 3:186.

⁷⁴ James, “Agricultural chymistry is at present in it’s infancy,” 374.

⁷⁵ RI MM, 15 October 1804, 3:337.

audience, a “considerable part of which consisted of Ladies,” by giving a course of veterinary lectures for men only, was politely declined by the Managers.⁷⁶

Viscountess Palmerston, the most active of the Royal Institution’s earliest distinguished patronesses, had been attracted to the Royal Institution because of Rumford’s scientific philanthropy. She was not satisfied with the new direction that the Royal Institution was taking, although she continued to attend the lectures. In her diary entry for 21 May 1803, she criticised the new management of the Royal Institution:

The Royal Institution, I fear, is on the decline by the ill-management of some of the present managers. They have subscribed £100 each. Their abuse of Count R[umford] is atrocious. Sir J. Banks thinks of withdrawing from it...⁷⁷

Her allegiance to Count Rumford and his scientific philanthropy, which drew Viscountess Palmerston to the Royal Institution when it was founded, might explain an estrangement between her and the Institution after Rumford had departed England never to return in May 1802.⁷⁸ Indeed, she was somewhat slighted by the Managers herself. After the death of her husband in 1802, Viscountess Palmerston was asked to produce the Will of her husband, who had been a Proprietor, in order to be able to continue to attend the lectures permanently.⁷⁹ This was in accordance with the rules, but the Managers often made exceptions, and she had enlisted so many Subscribers and done much for the reputation of the Institution as a distinguished patroness. On 4 June 1804, her son, future Prime Minister Henry Temple, inherited his father’s proprietary share, around the time his mother became terminally ill – she died on 20 January 1805.⁸⁰

Sir Charles Blagden (bap. 1748, d. 1820), an ally of Banks, shared her discontentment with the Royal Institution. In a letter to Viscountess Palmerston,

⁷⁶ RI MM, 15 October 1804, 3:336.

⁷⁷ Viscountess Palmerston, diary entry of 21 May 1803, quoted in Connell, *Portrait of a Whig Peer*, 462.

⁷⁸ Sparrow, *Knight of the White Eagle*, 134.

⁷⁹ RI MM, 19 March 1804, 3:235.

⁸⁰ RI MM, 4 June 1804, 3:290.

Blagden spoke of a division between those who favoured the “old” and “new” management of the Institution, and remarked “the present persons, as you know, are pretty free in their censure of the former.”⁸¹ Blagden’s letter to Viscountess Palmerston also indicates that the influence of Sir Joseph Banks, who enjoyed the position of being able to informally police London science,⁸² was waning at the Royal Institution. Frank James has re-interpreted the Royal Institution’s refusal to host lectures for the Board of Agriculture in its lecture theatre not as a sign that the Royal Institution was moving away from agricultural interests, as Morris Berman suggested, but as evidence of the Managers’ attempts to be independent of Banks.⁸³ As he was under Banks’s patronage, Davy was put in an awkward position as the Managers sought to distance the Institution from the Banksian empire.⁸⁴ Jon Klancher has also remarked that, for Banks, Davy’s was an “unruly, alarmingly miscellaneous, all too fashionable urban audience” that had become outwith the power of the Royal Society of London.⁸⁵ These circumstances are indicative of the reversal from the Royal Institution’s original objects.

By 1804 Thomas Bernard, as James argues, may well have been among the “enemy” that Banks was referring to, but both Thomas and Margaret Bernard had been supportive of Rumford’s scientific philanthropy. Rumford had fitted the Foundling Hospital with a new kitchen on his principles in 1796, an account of which was published in the reports of the *Bettering Society*.⁸⁶ Thomas Webster counted Bernard among his friends, a supporter of the School for Mechanics as opposed to Banks who had needed persuading. As part of a Select Committee, Bernard had raised the concern that the Royal Institution might be seen as neglecting its object

⁸¹ Charles Blagden to Viscountess Palmerston, 7 November 1804, Beinecke Rare Book and Manuscript Library, Yale University, Osborn c114. I am grateful to Hannah Wills, a fellow PhD student at the STS department at UCL for this reference.

⁸² Weindling, “Science and Sedition,” 147.

⁸³ James, “Agricultural chymistry is at present in it’s infancy,” 375.

⁸⁴ James, “Agricultural chymistry is at present in it’s infancy,” 374.

⁸⁵ Klancher, *Transfiguring the Arts and Sciences*, 63.

⁸⁶ Matron of the Foundling, “Extract from an account of the kitchen, fitted up at the Foundling, under the direction of Count Rumford,” 1:108-117.

of applying science to the common purposes of life by scrapping the artisan ticket scheme.⁸⁷

Bernard was part of both the old and new management of the Royal Institution. Jon Klancher has recovered the agency of the too often neglected Thomas Bernard in the early years of the Royal Institution by emphasising the importance of Bernard's role as a "cultural administrator" who shaped the landscape of public lecturing in England in this period.⁸⁸ For Klancher, Bernard's role was to direct "taste," and Bernard could shape the taste *and* composition of the Royal Institution's audience.⁸⁹ I would rather argue that Bernard recognised and adapted to the taste and composition of the Royal Institution audience as opposed to directing it. He was able to admit that the projects for the scientific education of workmen had failed and adapt, as reflected in the Select Committee's advice to make the lectures, and not mechanical models, the Royal Institution's priority.⁹⁰

In his letter to Viscountess Palmerston, Blagden questioned the "direction" of Bernard's efforts to appeal to the upper-class female audience.⁹¹ Nevertheless, annual subscriptions to the Royal Institution peaked in 1805. Morris Berman has argued that this increase in Annual Subscribers was due to the establishment of the mineralogical collection.⁹² Berman cites gifts of minerals made by Proprietors as reflective of this increase,⁹³ but Annual Subscribers, not Proprietors, gave the specific gifts that Berman cited.⁹⁴ Berman only considered Proprietors, and consequently Annual Subscribers (of whom about half were female) and their interest in the lectures of the Royal Institution did not come under the remit of his study. As the Managers had made lectures the priority after 1803, Bernard's efforts to offer an extended lecture programme were also a likely cause of this increase in

⁸⁷ RI MM, 7 March 1803, 3:103.

⁸⁸ Klancher, *Transfiguring the Arts and Sciences*, 52 and 72.

⁸⁹ Klancher, *Transfiguring the Arts and Sciences*, 65.

⁹⁰ RI MM, 7 March 1803, 3:97.

⁹¹ Charles Blagden to Viscountess Palmerston, 7 November 1804, Beinecke Rare Book and Manuscript Library, Yale University, Osborn c114.

⁹² Berman, *Social Change and Scientific Organization*, 90.

⁹³ Berman, *Social Change and Scientific Organization*, 90 and RI MM, 28 January 1805, 4:16.

⁹⁴ Major Ogg was elected Annual Subscriber on 21 January 1805, RI MM, 21 January 1805, 4:11 and Dr Ainslie was elected Annual Subscriber on 16 February 1801, RI MM, 16 February 1801, 2:133.

subscribers in 1805. This is borne out in Thomas Frognall Dibdin's observation that Sydney Smith was as popular a lecturer as Davy,⁹⁵ and it was in 1805 that Bernard first secured Sydney Smith as a lecturer in moral philosophy.⁹⁶

Thomas Bernard steered the projects of the Royal Institution towards upper-class women, and, like the distinguished patronesses, Bernard had experience of navigating the West End visiting system of the season. He reportedly had "visited drawing-rooms" to gain support for his *Bettering Society*, making benevolence "fashionable under his influence."⁹⁷ Both Margaret and Thomas Bernard, who collaborated in their work, were also central to the management of the Foundling Hospital, and there was some overlap between the Royal Institution and the Foundling. Women who wanted to subscribe to the Royal Institution through Margaret Bernard were advised to call on her at the Foundling.⁹⁸ At the Foundling in May 1807, Royal Institution lecturers Reverends John Hewlett and Sydney Smith were engaged to deliver morning and evening sermons respectively.⁹⁹ Following their experience with London's fashionable world as leaders of the *Bettering Society* and the Foundling, the Bernards were well equipped to "give fashion to science,"¹⁰⁰ and change the strategy of the Royal Institution to better suit its upper class female audience rather than an audience of workmen.

Thomas Garnett, following his experiences as a lecturer at Glasgow's Anderson's Institution, encouraged the Managers of the Royal Institution to seek an upper-class female audience, at a time when their efforts to involve manufacturers and workmen in the Institution were faltering. However, it was only after eight distinguished patronesses were given power over the female subscriptions that women began to subscribe to the Royal Institution. John Davy, younger brother of Humphry Davy, reflected that persons of influence alone could have made the Royal Institution fashionable, "and, if fashionable, popular."¹⁰¹ The influence of the

⁹⁵ Dibdin, *Reminiscences of a Literary Life*, 1:228.

⁹⁶ RI MM, 14 January 1805, 4:9.

⁹⁷ Dibdin, *Reminiscences of a Literary Life*, 1:231.

⁹⁸ RI MM, 17 January 1803, 3:74 and 5 December 1803, 3:173.

⁹⁹ Anonymous, "Foundling, April 30, 1807," *Morning Post*, 1 May 1807, 1d.

¹⁰⁰ Bence Jones, *The Royal Institution*, 258.

¹⁰¹ John Davy, *Memoirs of the Life of Sir Humphry Davy*, 1:153.

distinguished patronesses made the Royal Institution fashionable. A combination of the efforts of Thomas Garnett, Thomas Bernard, and the Royal Institution's distinguished patronesses, meant that throughout the decade women from the upper classes would make up nearly half of the Royal Institution's audience.

4.3 Fashion and chemistry

While the Royal Institution offered the same social and cultural resources as the other venues of the season, it was also marked out by its emphasis on useful projects that attracted an aristocracy refashioning themselves as a service élite. Moreover, the Royal Institution presented an opportunity for women to become part of that service élite. George Foote concluded that Davy's lectures found an audience because of their emphasis on the utility of science, but did not explain why utility was so attractive to this particular audience.¹⁰² Davy indeed professed a science that was of use to society. Diana Donald has argued that restrictions on women in the late-eighteenth century were countered by a "zest for 'improvement.'"¹⁰³ Richard Altick remarked that an "impulse" for self-improvement which had already existed among the middle classes was transmitted to the higher classes, and that the Royal Institution lectures were symptomatic of this impulse.¹⁰⁴ The upper-class desire for improvement should be connected to Colley's argument that this era saw the making of what she called a British service élite.¹⁰⁵ Going to Davy's lectures was one way that fashionable women from the upper classes could try to prove themselves useful to the nation, and part of the service élite.

By 1811, useful science was embraced by the fashionable *Lady's Magazine*. That year's volume began with an advertisement that invited the female reader to share any experiment that she had made that could provide "useful information:"

To any lady, who, by reflexion or experiment, is enabled to impart useful information of any kind, it can hardly be necessary to observe, that she will perform a philanthropic and meritorious deed in communicating her ideas to the public, and thus contributing to the well-being of her fellow

¹⁰² Foote, "Sir Humphry Davy and his audience at the Royal Institution," 8.

¹⁰³ Donald, *The Age of Caricature*, 80.

¹⁰⁴ Altick, *The Shows of London*, 366.

¹⁰⁵ Colley, *Britons*, 192.

members of society, who may in fact be said to have a moral claim on her for such information, as a kind of debt which she owes to society.¹⁰⁶

If she imparted useful scientific knowledge through the magazine, it would be seen as a “philanthropic” deed – the lady would be serving society, and indeed it was even a type of moral duty. Alongside plates of the latest London fashions that issue also published useful scientific knowledge. There was a piece on how to use chemicals to detect the fraudulent addition of vitriol and sugar of lead in vinegar and wine, with the warning, still adhered to in chemical laboratories today, that acid must be added to water, not vice versa, in order to dilute it.¹⁰⁷ Chemistry and fashion were housed in the same magazine.

Being fashionable did not stop a woman from being a chemist. Lady Hippisley, distinguished patroness of the Royal Institution, was a chemist with her own laboratory on her country estate at Ston Easton in Somerset. She was the second wife of Manager Sir John Coxe Hippisley, who wrote the Royal Institution’s *Prospectus*. Lady Hippisley made her annual trip to London from Somerset for the season at the beginning of the year with enough clothes, plates and provisions to last her household five months, and she also brought to Town her laboratory articles, electric machine, chemical glasses, chemical box and case, chemical books, chemical drugs, chemical machine and fossils.¹⁰⁸ A pneumatic trough identified as “probably” Lady Hippisley’s is exhibited in the University of Oxford Museum for the History of Science.¹⁰⁹ When in Somerset, Hippisley corresponded with the Metropolitan chemists:¹¹⁰ Charles Hatchett (1765-1847) advised her to use three thermometers in her experiments with sulphur;¹¹¹ and William Allen instructed her

¹⁰⁶ Anonymous, “Advertisement,” *The Lady’s Magazine; or Entertaining Companion for the Fair Sex* 42 (January 1811): 2.

¹⁰⁷ C. C. A., “To detect adulterated vinegar and wine,” *The Lady’s Magazine; or Entertaining Companion for the Fair Sex* 42 (January 1811): 10-11.

¹⁰⁸ Lady Hippisley’s memoranda book was started in 1804 and is part of the collection of the Papers of the Hippisley Family of Ston Easton, held at the Somerset Heritage Centre (hereafter SHC), DD/HI/A/331.

¹⁰⁹ Museum of the History of Science, University of Oxford, Inventory Number 40583.

¹¹⁰ Some of the papers and correspondence to Lady Hippisley form part of the MS Gunther 68 collection at the Museum of the History of Science, University of Oxford (hereafter MHS, MS Gunther 68).

¹¹¹ Charles Hatchett to Lady Hippisley, 16 November 1804, MHS, MS Gunther 68.

on procuring oxygen from oxymuriate of potash, the black oxide of manganese, and the oxide of quicksilver called “red precipitate.”¹¹² Lady Hippisley’s letters are marked by what appear to be chemical burns, suggesting they were taken into her laboratory.

Lady Hippisley’s relationship to the poor on her country estate had elements of Rumfordian scientific philanthropy, in common with other distinguished patronesses. As Morris Berman noted, when Thomas Bernard spoke of making philanthropy scientific, he meant making philanthropy more “systematic” and “organised.”¹¹³ Scientific philanthropy involved the micro-management of the lower classes by a small number in the higher classes, and its methods were supposed to be universally applicable. Besides her chemical experiments, Lady Hippisley managed her country estate at Ston Easton and her town house in London’s West End, and she managed them to minute detail. Her personal memoranda book demonstrates how she itemised and calculated every common activity:¹¹⁴ how much hay per week was required to keep two horses in London? What were the household’s washing expenses for the year 1805, including the amount of starch and soap used as well as the wages of the washers and ironers? How many carp were in the pond at Ston Easton in August 1805? How much beer had her household consumed, and how much beer needed to be brewed every half a year to keep the stocks up? Such minute accounting was not reflective of a lack of wealth. Sir John Coxe Hippisley had amassed a fortune of £100,000 while serving the East India Company in the 1780s, and although he spent money on his (successful) contest to become M.P. for Sudbury and purchasing a country estate in Berkshire, his income in 1806 was still £8,000 per annum.¹¹⁵

Lady Hippisley controlled when her servants could eat dinner and supper, and how much beer they were given. She also kept meticulous lists of the parish poor that received a pension from her, who was given clothes at Christmas, and who was

¹¹² William Allen to Lady Hippisley, undated c. 1804, MHS, MS Gunther 68.

¹¹³ Berman, *Social Change and Scientific Organization*, 8.

¹¹⁴ Memoranda book of Lady Elizabeth Anne Hippisley for 1804, SHC, DD/HI/A/331.

¹¹⁵ Ronald Thorne, “Hippisley, Sir John Coxe, first baronet, 1745/6-1825,” *Oxford Dictionary of National Biography* (published online 23 September 2004).

given sacrament money. Next to the names of the parish poor Lady Hippisley assigned descriptions: widow, lame, labourer, collier, sailor, infirm, old, sick, deformed, spinster, sawyer, carpenter, orphan, tailor, and for Henry Coxley, his wife and two children, the judgement that they were “industrious.”¹¹⁶ As Count Rumford attempted to control the eating habits of the poor of Munich,¹¹⁷ Lady Hippisley controlled the diet of her servants and rewarded those among the poor of her parish she judged “industrious.”

Mineralogy appears to have been the main focus of Lady Hippisley’s studies. She used her correspondence network to add to her own mineralogical collection: the clergyman Henry Venn Elliott (1792-1865) sent her lavas from Etna;¹¹⁸ Dr Robert Blake sent her minerals from Ireland;¹¹⁹ the mineralogist John Mawe (1766-1829) sent her a sample of “resin cement;”¹²⁰ and Humphry Davy outlined to her a method of analysing fossil shells.¹²¹ Sometimes her husband was used as a go-between in this correspondence. Not long after she was made a distinguished patroness on 5 December 1803,¹²² Lady Hippisley gave some of her minerals as a gift to the Royal Institution to bolster their mineralogical collection.¹²³

Mineralogy interested landowners who could profit from the mineral deposits on their estates. In his lecture on 3 March 1810, Davy stressed that the mineralogical collection would “promote” the search for “subterraneous riches” in the British Isles.¹²⁴ Davy began giving geology lectures in 1805, which he repeated in 1806, 1807, 1808 and 1811,¹²⁵ and according to the *Liverpool Mercury* newspaper, Davy’s geology lectures were more “numerously attended” than his chemistry lectures in 1811.¹²⁶ The *Liverpool Mercury* reported that among the constant auditors were

¹¹⁶ Memoranda book of Lady Elizabeth Anne Hippisley for 1804, SHC, DD/HI/A/331.

¹¹⁷ Maerker, “Political Order and the Ambivalence of Expertise,” 223.

¹¹⁸ Henry Elliott to Sir John Coxe Hippisley, undated, watermark 1818, MHS, MS Gunther 68.

¹¹⁹ Robert Blake to Lady Hippisley, 1 December 1806, MHS, MS Gunther 68.

¹²⁰ John Mawe to Lady Hippisley, undated, watermark 1817, MHS, MS Gunther 68.

¹²¹ Humphry Davy to Lady Hippisley, undated, watermark 1801, MHS, MS Gunther 68.

¹²² RI MM, 5 December 1803, 3:172.

¹²³ RI MM, 23 January 1804, 3:205.

¹²⁴ Davy, *3 March 1810 lecture*, 12.

¹²⁵ RI MM, 14 January 1805, 4:9; 27 April 1807, 4:254; 22 February 1808, 4:318; 18 February 1811, 5:187; and General Meetings: Minutes 1799-1813, RI MS AD/02/B/01/A01, page 69.

¹²⁶ Anonymous, “Advertisement,” *Liverpool Mercury*, 9 August 1811, 47c.

“three to four hundred Ladies of the highest rank and respectability,” which suggests around half of the audience at Davy’s geological lectures were female.¹²⁷ Berman has argued that the landed interest used the Royal Institution to aid their search for lucrative minerals,¹²⁸ but due to his focus on Proprietors and Managers only, he only considered men from the landed classes. Yet women who resided on country estates, who subscribed to or patronised the Royal Institution, also saw opportunity in mineralogy, as exemplified by Lady Hippisley. She asked a Frederick Hall to send her specimens including “crystals of white lead ore” from Arkengarthdale lead mine in Yorkshire.¹²⁹ Her estate on Ston Easton was located in the Mendips, an area mined for lead since the Romans. Furthermore, the evidence listed above would suggest that it was Lady Hippisley, not Sir John, who managed the estate at Ston Easton – a conclusion that was also reached by the Reverend Jocelyn Antrobus in his article published in *Country Life Magazine* in November 1943.¹³⁰

Lady Hippisley was not alone among the distinguished patronesses in her interest in mineralogy: Georgiana, the Duchess of Devonshire also had her own collection of minerals and fossils that she displayed at Chatsworth.¹³¹ The Ecton Copper mine in Derbyshire had made her husband, the Royal Institution Proprietor the Duke of Devonshire, a fortune in the late-eighteenth century. In October 1793, when the Duke had gout, the Duchess spent much of her time studying chemistry and she attended at least one chemical lecture.¹³² Amanda Foreman assigns an introduction to Sir Charles Blagden through the Palmerstons as the source of the Duchess of

¹²⁷ Anonymous, “Advertisement,” *Liverpool Mercury*, 9 August 1811, 47c.

¹²⁸ Berman, *Social Change and Scientific Organization*, 88.

¹²⁹ Frederick Hall to Lady Hippisley, 28 May 1811, MHS, MS Gunther 68.

¹³⁰ Jocelyn J. Antrobus, “Lady Hippisley: Her Day Book, 1814,” *Country Life Magazine* (26 November 1943): 942-944.

¹³¹ Ebenezer Rhodes, *Peak Scenery, Or, The Derbyshire Tourist* (London, 1824), 159. Rhodes’s tour of Chatsworth was made in 1818.

¹³² Marelene Rayner-Canham and Geoff Rayner-Canham, “British women and chemistry from the 16th to the mid-19th century,” 118.

Devonshire's interest in mineralogy, another instance of the importance of Viscountess Palmerston's networking in making science fashionable.¹³³

Diana Beaumont (1765-1831) was not a distinguished patroness, although she was one of the few female Proprietors of the Royal Institution, and unusually took over her husband's¹³⁴ Proprietary share before his decease.¹³⁵ According to S. J. Wright, Diana Beaumont may have started life with "bleak prospects," but she rose from being raised in the lower-middle classes, the illegitimate daughter of a country squire, to amass a fortune over the course of her lifetime that left her son "the wealthiest commoner in England" upon her death in 1831.¹³⁶ Diana Beaumont made her fortune from the land. Although she was illegitimate, and female, she persuaded her father to change his Will so that his estate would be left in trust to her male heir.¹³⁷ She expanded their Yorkshire estate, one of three estates owned by the Beaumonts, by 3,000 acres to over 10,000 acres, and by her death the Yorkshire estate alone was making over £15,000 a year in agricultural rents.¹³⁸ A passage from Wright's history of Diana Beaumont gives a good sense of the scale of her enterprise:

By the time she died she had three sets of lawyers, in the North, in Yorkshire and in London. In each of her estates she needed a professional land agent, a farm bailiff, and a steward for each of her houses, she also needed a banker in each geographic location. On top of this entourage of permanent and semi-permanent employees she was deploying on a daily basis surveyors, mineral agents and valuers various.¹³⁹

Diana Beaumont had agricultural interests and mineralogical interests, as she made a regular habit of employing "mineral agents, surveyors and valuers various" to assess how much capital her land could bring her. Diana Beaumont, like Lady

¹³³ Amanda Foreman, *Georgiana, Duchess Of Devonshire* (London: Harper Collins, 1998, paperback edition 1999), 277.

¹³⁴ Colonel Thomas Richard Beaumont (1758-1829), M.P. for Northumberland.

¹³⁵ Diana Beaumont became a Proprietor when she was given the share of her husband, Thomas Richard Beaumont, on 7 March 1808, see RI MM, 7 March 1808, 4:322.

¹³⁶ S. J. Wright, *Bretton, The Beaumonts and a Bureaucracy. A West Yorkshire Estate in the Eighteenth and Nineteenth Centuries* (Wakefield: Wakefield Historical Publications, 2001), 3.

¹³⁷ Wright, *Bretton, The Beaumonts and a Bureaucracy*, 39-40.

¹³⁸ Wright, *Bretton, The Beaumonts and a Bureaucracy*, 50.

¹³⁹ Wright, *Bretton, The Beaumonts and a Bureaucracy*, 5.

Hippisley, was very much in the mould of Morris Berman's improving landlord, with the important difference that she was female. From 1805 until 1811, the land agent Charles Bowns was asked to conduct an extensive survey of the Beaumont's Yorkshire estate.¹⁴⁰ Wright remarked that the timing of such an extensive survey was unusual, as such surveys were normally undertaken when an estate changed ownership, which was not the case with Bowns' survey.¹⁴¹ Perhaps the Royal Institution's message, that minerals meant wealth for the landed classes, had contributed to Diana Beaumont's decision to have such a survey made. Moreover, records show she consulted the mineralogical collection and subscribed to have samples of minerals analysed at the Royal Institution laboratory.¹⁴²

If a handful of fashionable women became patronesses of science, they would attract crowds to the Royal Institution. Belief in the power of example was something that both scientific philanthropy and fashion had in common. Unlike the workmen who were to be segregated and hidden up in the gallery, as according to Webster's design for the lecture theatre, fashionable women were there to be seen. Sir John Coxe Hippisley's pledge to the Proprietors and Subscribers of the Royal Institution warned the "Ladies of this Metropolis," who were "not the earliest attendants at public Assemblies," that turning up fashionably late might result in a seat in the back row.¹⁴³ As the later-added paragraphs concluding the Royal Institution's *Prospectus* implied, fashion relied on leading by example. The distinguished patroness Margaret Bernard had also appreciated this when she hoped the fashionable Bath repository would be imitated in towns across England: she remarked "there is no country town in England, where the rich may not derive pleasure, the poor receive benefit, and society in general be improved by the imitation of this example."¹⁴⁴ Margaret Bernard's report, written in 1796, anticipated the thesis in the final two paragraphs of the Royal Institution's *Prospectus*: when the rich took "pleasure" in useful mechanical improvements from which the poor would benefit, society as a whole would prosper.

¹⁴⁰ Wright, *Bretton, The Beaumonts and a Bureaucracy*, 53.

¹⁴¹ Wright, *Bretton, The Beaumonts and a Bureaucracy*, 54.

¹⁴² *Subscription for the Mineralogical Collection and Office Assay*, RI MS AD/10/C/04/B.

¹⁴³ RI MM, 27 January 1800, 1:93.

¹⁴⁴ Bernard, "Extract from an account of the Bath repository," 2:318.

Women in the service élite played a particular role. It was believed that women in the upper classes had the power to direct fashion – and that through this influence they could even set the moral standard for the entire nation. Writing at the height of the Public Understanding of Science movement in the early 1990s, Roger Cooter and Stephen Pumfrey cautioned against diffusionist models of the historical popularisation of science, from the fashionable world of the upper class through to the poorer classes of society.¹⁴⁵ Nevertheless, there is ample evidence that contemporaries at the Royal Institution, for example Count Rumford and Margaret Bernard, believed in the power of fashionable women to lead by example, although an examination of whether this influence really extended beyond the immediate spheres of fashionable upper class women is beyond the scope of this thesis. The *Microcosm of London* (1808-1810) placed the Royal Institution at the centre of a diffusionist model, arguing the “beneficial consequences” to the nation brought about through the diffusion of knowledge were “demonstrably evident.”¹⁴⁶ Furthermore, Ackermann’s *Microcosm* added, these benefits were “heightened and enlarged” as the Royal Institution involved “the sex, whose influence is so great on general manners.”¹⁴⁷

The Royal Institution promoted the concept that upper-class women dictated the morals of the nation by directing fashion. The final paragraph of the Royal Institution *Prospectus* connected “good taste, with its inseparable companion, good morals.”¹⁴⁸ A satirical work linking “good taste” to utility by Thomas Frognall Dibdin, “A Walk in London,” was published in *The Director* magazine.¹⁴⁹ *The Director* was very much a mouthpiece for the Royal Institution: Dibdin was its editor, and he had instigated the magazine at the request of Thomas Bernard.¹⁵⁰ The magazine published essays, many of which were written by Humphry Davy, Thomas Bernard and Dibdin himself, alongside synopses of the lectures at the Royal Institution. Dibdin’s essay “A Walk in London” poked fun at the current fashions of the West-

¹⁴⁵ Cooter and Pumfrey, “Separate Spheres and Public Places,” 248.

¹⁴⁶ Ackermann, *The Microcosm of London*, 3:28.

¹⁴⁷ Ackermann, *The Microcosm of London*, 3:28.

¹⁴⁸ *Prospectus of the Royal Institution*, 15.

¹⁴⁹ Thomas Frognall Dibdin, “A Walk in London,” *The Director* 2 (9 May 1807): 97-114.

¹⁵⁰ Dibdin, *Reminiscences of a Literary Life*, 1: 249-250.

End shops. It was written in the form of a letter sent to the country squire “Rusticus,” at home in Lancashire, from his wife staying with their marriage-ready children at Dorant’s Hotel in Mayfair, significantly on Albemarle Street, the same street as the Royal Institution. The opinions of the fictional country squire “Rusticus” were commonplace in the magazines of the 1770s,¹⁵¹ and now Dibdin resurrected Rusticus to contrast the Royal Institution favourably against other more frivolous urban fashions. Dibdin’s Rusticus ridiculed, for example, “the absurdity of decorating carpet-rugs and mats with monsters of the bird and beast kind,” when his adolescent daughter mistook an embroidered tiger for the real thing.¹⁵² However, the light-hearted piece concluded with a moral message – that such “perverted tastes” ought to be “corrected.”¹⁵³ Rusticus wished that “utility” rather than “thoughtless extravagance” were the fashion.¹⁵⁴

Anna Letitia Barbauld judged the moral standard of London according to where the fashionable crowd sought to frequent. In early 1800, when Garnett was lecturing, she remarked that one third of the audience at the Royal Institution was female, and approved of the Royal Institution becoming a fashionable haunt, to “some credit to the taste of the town.”¹⁵⁵ If upper-class women had the power to direct the taste of the rest of the society, then science being fashionable was a good thing for those who wanted to diffuse science. With the wealth of other entertainment available for fashionable audiences in the London season, attendance at the Royal Institution was a support of “useful” projects for the “common purposes of life,” as opposed to other thoughtless extravagances.

The Royal Institution’s earliest projects were concerned with scientific philanthropy, which shared with fashion its emphasis on the power of example. When the Royal Institution was founded Rumford fireplaces were fashionable and worthy subjects of caricaturists, and even as parodies of caricatures. When Jane Austen’s heroine Catherine Morland first found herself at Northanger Abbey, she was disappointed

¹⁵¹ Donald, *The Age of Caricature*, 80.

¹⁵² Dibdin, “A Walk in London,” 112-113.

¹⁵³ Dibdin, “A Walk in London,” 113.

¹⁵⁴ Dibdin, “A Walk in London,” 113.

¹⁵⁵ Anna Letitia Barbauld to Mrs Kenrick, [undated] 1800, *A Memoir of Mrs Anna Lætitia Barbauld*, 1:226.

to find that what she had hoped would be an old, gothic fireplace had instead been fashionably “contracted to a Rumford.”¹⁵⁶ A caricature of Count Rumford warming his backside against his famous stove, *The Comforts of a Rumford Stove*, published by James Gillray in 1800, told viewers to “vide Dr Garnett’s lectures.” A more explicit link between Rumford’s stove and fashion was made by Charles Williams’s 1801 parody of Gillray’s caricature, *Luxury or the Comforts of a Rumpford* (see Figure 5). In Williams’s etching, a scantily clad young woman stands in front of Rumford’s stove warming her naked bottom, while surrounded by items of luxury – a sumptuously draped couch, a bottle of French-imported “Crème de Noyeau” and just visible in the top-right hand corner a chandelier hangs in front of a painting of a reclining naked woman. A fat cat lies at the feet of the young woman, in attitude of sloth and gluttony so that it almost looks dead. Her exposed backside questions the woman’s virtue. In her hand she holds the Member of Parliament Matthew Gregory Lewis’s (1775-1818) gothic novel “The Monk,” published in 1796, which outraged critics with its sexual depravity. A gothic novel of the genre satirised in Austen’s *Northanger Abbey* (1817), *The Monk* is a tale of the moral descent of a monk who abandons ascetic living. The focal object (apart from the young woman) in this scene of feminine luxury is the Rumford Stove. Williams’s caricature showcases the criticisms that could be levelled against fashionable women, the same women who subscribed to the Royal Institution.

¹⁵⁶ Jane Austen, *Northanger Abbey and Persuasion*, in four volumes (London, 1818), volume 2, chapter 5. Although first published posthumously in 1817, Austen wrote *Northanger Abbey* around 1798-9.



Figure 5. Charles Williams, *Luxury or the Comforts of a Rumpford* (1801), courtesy of the British Museum.

The countervailing “zest for improvement” that existed in tension with a resistance to female influence, as described by Donald,¹⁵⁷ characterised attitudes towards the Royal Institution’s upper-class female audience in its first years. For Francis Horner,

¹⁵⁷ Donald, *The Age of Caricature*, 80.

the Royal Institution was a “trophy to the sciences” – it signified “one great advance” towards “the association of female with masculine minds in the pursuit of useful knowledge.”¹⁵⁸ Horner and Barbauld converged in their opinion that it showed “good taste” for fashionable society to patronise an institution that promoted useful knowledge. Yet Horner explained he was left with “ambiguous” feelings after attending one of Davy’s lectures in 1802, where he observed the “prospect of possible good is mingled with the observation of much actual folly.”¹⁵⁹

Contemporary reactions to fashionable women attending lectures at the Royal Institution were therefore not wholly antagonistic. It was preferable that chemistry was being patronised instead of racy novels, viewed as more morally suspect. However, if fashion had the potential to cause “social disruption” through subverting hierarchies of class and gender, fashion could also subvert chemistry.¹⁶⁰ The detrimental influence of fashion was made manifest in the figure of Humphry Davy who, as Jan Golinski has shown, was ridiculed as a dandy who encouraged “female insubordination.”¹⁶¹ Though, as I will show, at times Davy sought to stem female intellectual ambition.

Fashion subverted gender roles, but it could also subvert social hierarchy. In her study of attacks on Davy in the press, J. Z. Fullmer showed that Davy’s critics used his appearance, in particular his dress, to mock him.¹⁶² Fullmer hinted that it was Davy “imagining himself a gentleman” that caused the attacks, however Fullmer was more concerned with showing to what degree the press attacks were warranted.¹⁶³ The attacks quoted by Fullmer have echoes of the “genteel mania” of the 1770s described by Donald, when aping the dress of one’s social betters was a popular theme in caricatures.¹⁶⁴ Leonard Horner (1785-1864), the younger brother of Francis Horner, mocked Davy for imitating the court dress of Sir Joseph Banks – and for getting the costume wrong. Writing to Alexander Marcet, Leonard Horner

¹⁵⁸ Horner, 31 March 1802, *Memoirs of Francis Horner*, 109.

¹⁵⁹ Horner, 31 March 1802, *Memoirs of Francis Horner*, 109.

¹⁶⁰ Donald, *The Age of Caricature*, 85.

¹⁶¹ Golinski, *The Experimental Self*, 85.

¹⁶² June Z. Fullmer, “Humphry Davy’s Adversaries,” *Chymia* 8 (1962): 147-164, on 154.

¹⁶³ Fullmer, “Humphry Davy’s Adversaries,” 153.

¹⁶⁴ Donald, *The Age of Caricature*, 83.

remarked that he had gone to see whether their mutual friend Davy would “look” the President of the Royal Society of London, but concluded that Davy instead looked more like a “footman” or “a porter at a shabby nobleman’s gate.”¹⁶⁵ When Leonard Horner criticised Davy for social climbing, he targeted his dress. Davy was a victim of fashion – he was thought to have allowed women too much influence and was mocked for imitating the dress of the court.

4.4 Making the union incongruous

And Wisdom, borne on Fashion’s pinion,
Exulting hails her new dominion.¹⁶⁶

For critics of the Royal Institution, fashion was synonymous with female power – a power that was feared by some. As the above couplet hints, written by audience member Catherine Fanshawe after attending one of Sydney Smith’s moral philosophy lectures in 1805, the audience at the Royal Institution had assimilated chemistry, philosophy and other subjects under the “dominion” of fashion. The culture of the season was influencing the activities of the Royal Institution, and the season – the world of fashion – was a social setting in which women from the upper classes had significant power. The large number of fashionable women subscribing to the Royal Institution alarmed critics. If science was fashionable, it might be subjugated by female power – although appearing to be fashionable was preferable to appearing to be Jacobin, as Thomas Webster had discovered. To check the influence of fashionable women, critics and lecturers drew an artificial separation between fashion and chemistry.

Diana Donald has described the late-eighteenth century moralists “deep conviction of the affinity between fashion and the female character.”¹⁶⁷ If science were in the realm of fashion, then it would be subject to female influence, as Henry Brougham

¹⁶⁵ Leonard Horner to Alexander Marcet, 10 April 1821, Katharine M. Lyell (ed.) *Memoir of Leonard Horner, F.R.S., F.G.S., Consisting of Letters to his Family and some of his Friends* in two volumes (London: Women’s Printing Society, 1890), 1:191. See also Fullmer, “Humphry Davy’s Adversaries,” 154.

¹⁶⁶ Fanshawe, “Ode, by Miss Berry,” 2:299.

¹⁶⁷ Donald, *The Age of Caricature*, 87.

worried in his scathing review of Thomas Young's 1802 Bakerian Lecture "On the Theory of Light and Colours":

We demand if the world of science which Newton once illuminated is to be as changeable in its modes as the world of taste, which is directed by the nod of a silly woman or pampered fop? Has the Royal Society degraded its publications into bulletins of new and fashionable theories for the ladies who attend the Royal Institution?¹⁶⁸

Brougham, a radical Whig lawyer, was marking the science on offer at the Royal Institution as inferior, a science that had been "degraded" because it was under the direction of upper-class women. Ridicule of the Royal Institution crossed the political divide: George Canning (1770-1827), the Tory M.P. and Prime Minister in 1827, amused the company at a dinner party of Lady Holland's on 1 March 1800 at the expense of the Institution.¹⁶⁹ Francis Horner, another Whig lawyer, called the audience for chemistry at the Royal Institution "very incongruous" as it was "assembled by the influence of fashion merely."¹⁷⁰ Both Brougham and Horner had been students of the exclusively male space of Edinburgh University, and had concerns about chemistry inhabiting a female space. The commentary on Davy's fashionable audience, rather than showing that women were being blocked from chemical sciences, instead hints that the scale in which women were partaking in chemical study at the Royal Institution was causing alarm.

Like Henry Brougham, the chemist and physician John Bostock (1772-1846) demarcated between science for the fashionable audiences at the Royal Institution, and the "distilled" science of published papers intended for men of science to read. Bostock complained that Davy had conflated the men who read scientific papers with his Royal Institution audience, "the Lords and Ladies, who come in their carriages for their weekly luncheon of philosophy. Just with the same intention, and with as much advantage, as they go in the evening, to hear Madame A. or Signora B.

¹⁶⁸ Brougham, review of Thomas Young's 1802 Bakerian Lecture "On the Theory of light and Colours," 452.

¹⁶⁹ Lady Holland, 1 March 1800, in the Earl of Ilchester (ed.) *The Journal of Elizabeth Lady Holland* in two volumes (London, New York, Bombay and Calcutta: 1908), 2:52.

¹⁷⁰ Francis Horner, 31 March 1802, *Memoirs of Francis Horner*, 109.

squall at the opera.”¹⁷¹ Bostock was outraged that the fashionable world would use chemistry like they would a theatre outing – a fashionable audience did not discriminate between the importance of chemical theories and the latest operatic entertainment.

Behind the criticisms of the Royal Institution by men like Bostock, who lived south of Liverpool, lurked the awareness of this exclusion from the patronage of London’s powerful fashionable set. In the exchanges between John Davy and John Murray on the nature of oxymuriatic acid,¹⁷² as according to Bostock, Humphry Davy “thought it too great a condescension to answer Murray himself.”¹⁷³ Bostock said of Davy’s brother “he treats Murray as an inhabitant of London is too apt to behave towards one of Edinburgh.”¹⁷⁴ Diana Donald has described the division between the fashionable and the unfashionable in this period as akin to a “new caste system.”¹⁷⁵ Britain’s fashionable “caste system” was divided along geographical boundaries – to be fashionable required a West End address. For Ellen Moers, Regency Society was characterised by exclusiveness, where “the world’s place was London, its span the length of the yearly season.”¹⁷⁶ This West End-centric world-view is borne out in the prosopographical analysis of Davy’s female audience, three quarters of whom gave addresses confined to a few London neighbourhoods.

J. N. Hays has argued that in the first half of the nineteenth century, London increasingly dominated “Great Britain’s scientific scene.”¹⁷⁷ Yet the criticisms of the Royal Institution’s audience cannot be reduced to a contest of metropolis versus province. When the American Benjamin Silliman visited London in 1805, he compared the supporters of the newly founded London Institution based in the City

¹⁷¹ John Bostock to Alexander Marcet, 16 March 1811. UCL Special Collections, Gilbert papers box 4, file 1, enclosure B.

¹⁷² Jan Golinski describes the debate between John Davy and John Murray in *Science as Public Culture*, 225.

¹⁷³ John Bostock to Alexander Marcet, 8 August 1811, UCL Special Collections, Gilbert papers, box 4, file 1, enclosure B, original emphasis.

¹⁷⁴ John Bostock to Alexander Marcet, 4 November 1811, UCL Special Collections, Gilbert papers, box 4, file 1, enclosure B.

¹⁷⁵ Donald, *The Age of Caricature*, 85.

¹⁷⁶ Moers, *The Dandy*, 41.

¹⁷⁷ J. N. Hays, “The London lecturing empire, 1800-50,” in Ian Inkster and Jack Morrell (eds.) *Metropolis and Province: Science in British Culture, 1780-1850* (Philadelphia: University of Pennsylvania Press, 1983), 91-119.

of London favourably to the fashionable audience at the Royal Institution based in Westminster.¹⁷⁸ For the republican Silliman, the fashionable people of London's West End lived only to be amused, and did not deserve their influence in society.¹⁷⁹ Unlike the industrious folk of the city, fashionable people in the West End were idle, not useful. In the wake of republicanism in France and the United States, the British upper classes had to repel such accusations and prove themselves a service élite that did not live off but lived for the nation. This is exemplified in Margaret Bernard's report on the Bath Repository, in which she urged her peers to support projects that "turned caprice and fashion into sources of relief."¹⁸⁰

Eleanor Anne Porden, like Catherine Fanshawe, confronted in her poetry those who feared the influence of the Royal Institution and its fashionable audience on chemistry. Perhaps alluding to the corrupting influence of Eve over Adam, Porden wrote the following couplet as part of an enigma for her father William Porden (bap. 1755, d. 1822):

Since first the world was made, we find
That fashion still has ruled mankind.¹⁸¹

In Porden's enigma, fashion, a female figure, changed from one form to the next, at one moment she was in the guise of a poet, at another moment an astronomer, and finally "to chemistry now turns her care."¹⁸² With Davy's lectures, fashion, a fickle patroness, had turned her attention to chemistry, but the attachment was unlikely to last. The enigma shows that Porden, who was trying to earn her reputation as an "authoress" through the scientific knowledge she acquired in the Royal Institution lecture theatre, was acutely aware that the integrity of her studies would be questioned, if they were labelled as fashionable.

¹⁷⁸ Lectures were not given at the London Institution until 1819, see Janet C. Cutler, *The London Institution 1805-1933* (University of Leicester Ph.D. thesis, 1976).

¹⁷⁹ Silliman, 11 July 1805, *A Journal of Travels in England*, 1:251.

¹⁸⁰ Margaret Bernard, "Extract from an account of the Bath repository," 2:317.

¹⁸¹ Eleanor Anne Porden, "Enigma for Mr. Porden," undated c. 1811, D3311/25/1/5.

¹⁸² Porden, "Enigma for Mr. Porden."

In 1799, Thomas Webster considered the dissemination of mechanical knowledge “among all ranks of people” the object of the Royal Institution.¹⁸³ By attracting a fashionable audience while failing to get manufacturers and workmen involved, the Royal Institution had to back-track against its own arguments to prove that its object was still to promote science for the common purposes of life. Its own *Prospectus* had set fashion up in “striking contrast” against usefulness:

The slowness with which improvements of every kind make their way into common use, and especially such improvements as are most calculated to be of general utility, is very remarkable; and forms a striking contrast to the extreme avidity with which those unmeaning changes are adopted, which folly and caprice are continually bringing forth and sending into the world under the auspices of fashion.¹⁸⁴

Porden had acknowledged the supposed fickleness of fashion in the enigma she wrote for her father. The *Prospectus* contrasted useful improvements against “unmeaning” fashionable trends that were quick to be adopted but also quick to be discarded.

In the sliding scale of importance, fashion was placed at the bottom and subject to ridicule. An anonymous author submitted a piece “On the Importance of Dress” to the *Lady’s Magazine* that satirised the values supposedly held by the world of fashion, by drawing analogies with the serious, masculine world of parliamentary politics. In the anonymous piece, the author proposed a “fashion houses of parliament” to mimic the “other” Houses of Parliament. Members of the fashion houses of parliament were to consider “all the grave and important matters of dress.”¹⁸⁵ Debates in politics and debates in fashion were equivocated in such a way as to make fashion ridiculous, for example, “a man, whose gravity and wisdom had been employed in a committee upon a pair of new pantaloons, would have very little left to bestow on the state of the navy.”¹⁸⁶ Fashion had an address, as only those living in the “fashionable squares at the West End of town” were eligible to

¹⁸³ RI MM, 14 September 1799, 1:59, original emphasis.

¹⁸⁴ *Prospectus of the Royal Institution*, 3.

¹⁸⁵ Anonymous, “On the importance of dress,” *The Lady’s Magazine; or Entertaining Companion for the Fair Sex* 32 (February 1801): 91-94, on 92.

¹⁸⁶ Anonymous, “On the importance of dress,” 93.

become Lords for the proposed fashion houses of parliament satirised in the *Lady's Magazine*.¹⁸⁷

Fashionables, at the mercy of Southey's wit, had no substance, and "proved satisfactorily the existence of a vacuum."¹⁸⁸ As science was constructed as of great use to society, fashion was constructed as of little use to society. Southey took a swipe at the "annals of the world of fashion" in the newspapers, features like the *Morning Chronicle's* "Mirror of Fashion," complaining that the inconsequential activities of the fashionable world, "the history of my lord's dinner, and my lady's ball," should be found in the same paper as a political essay of "the boldest character and profoundest reasoning."¹⁸⁹ As with the ladies who Southey accused of misusing chemistry and the other subjects taught at the Royal Institution as "topics for the next conversation party," Southey, pretending to be Spanish, feigned surprise that in England the news of fashionable people was to be found in the same forum as serious "public events."¹⁹⁰ Although still a friend of Davy's, Southey thought the Royal Institution an "unworthy" use of Davy's talents.¹⁹¹

The poet Catherine Fanshawe wrote about the fashionable world of the Royal Institution that she inhabited with a self-deprecating humour, playing-up to the over-importance that women were thought to give to fashion. Fanshawe, after attending a lecture by the Reverend Sydney Smith at the Royal Institution with her friend Mary Berry, wrote an ode that played on the low importance that was ascribed to the fashionable world by its outsiders. Fanshawe used the supposed inability of the fashionable audience to differentiate between the serious debates in the world of men and the frivolous debates in the world of women. She imagined the Royal Institution lecture theatre packed with "fair" students, "gaily-vestured," who pity their lecturer's ignorance on the real subject of importance – fashion – by asking him "Poor moralist! And what art thou, who never spoke of dress?"¹⁹² A similar point had been made by the author that sarcastically proposed a fashion

¹⁸⁷ Anonymous, "On the importance of dress," 93.

¹⁸⁸ Southey, *Letters From England*, 3:302.

¹⁸⁹ Southey, *Letters from England*, 1:57.

¹⁹⁰ Southey, *Letters from England*, 3:314.

¹⁹¹ Southey, *Letters from England*, 3:315.

¹⁹² Fanshawe, "Ode, by Miss Berry," 2:301.

houses of parliament in the *Lady's Magazine*, which used the fashionable world's supposed lack of discernment between the tasks of, for example, deciding on the breadth of a sash and predicting the probable duration of a war, to comic effect.¹⁹³ On 9 March 1809, Catherine Fanshawe and Mary Berry were at a party with Humphry Davy where, according to Lady Stanley, "Miss B. did herself sore injury" by "quizzing" the use of the Institution.¹⁹⁴ Berry hit a nerve – she joked that it was only Fanshawe's creation of the ode to a bonnet that had made their attendance at the lectures worthwhile.

Expectations of fashionable audiences were not high, and lecturers therefore tended to underestimate them. The fleeting nature of fashion worried Davy, who in his lecture on 3 March 1810, hoped that the women who had attended his lectures for the past eight years would continue to do so "with an attention which is independent of fashion, or the taste of the moment."¹⁹⁵ Garnett too had predicted from his experience at Anderson's Institution in Glasgow that the fashionable audience at the Royal Institution would decrease as taste moved on to the next novelty.¹⁹⁶ When John Dalton came to London's West End from Manchester to lecture at the Royal Institution in 1803 he was "agreeably disappointed" to find that an audience "of rank" could be "so learned and attentive."¹⁹⁷ The contemporary discourse that prescribed science in a fashionable context as undesirable has also permeated the secondary literature. Saba Bahar makes a distinction between the other unnamed fashionable women at the Royal Institution and Jane Marcet, who worked with men of science, including her husband, to publish *Conversations on Chemistry* (1806). In Bahar's words "Marcet's interest in chemistry could not be reduced to a mere fashion."¹⁹⁸

A split between the "fashionable" and the "scientific" parts of the audience was made before lectures even commenced at the Royal Institution. Garnett told the

¹⁹³ Anonymous, "On the importance of dress," 93.

¹⁹⁴ Mariah Josepha Stanley to Louisa Dorothea Clinton, 9 March 1809, *The Early Married Life of Maria Josepha Stanley*, 312-3.

¹⁹⁵ Davy, *3 March 1810 lecture*, 37.

¹⁹⁶ RI MM, 23 December 1799, 1:78.

¹⁹⁷ John Dalton, quoted in Treneer, *The Mercurial Chemist*, 88.

¹⁹⁸ Bahar, "Jane Marcet and the Limits to Public Science," 40.

Managers of the Royal Institution on 23 December 1799 that he expected his lectures would attract “two classes of auditors.”¹⁹⁹ the first class of auditors would attend the lectures “chiefly for amusement, or because it may be fashionable;”²⁰⁰ the second class of auditors would be “those attached to scientific pursuits.”²⁰¹ Lectures suited for the fashionable audience would avoid “abstract reasoning” but contain “the most entertaining and interesting experiments.”²⁰² The object was to amuse the fashionable audience and impart knowledge to them without taxing their attention.²⁰³

Davy professed that as a lecturer he had only had one difficulty, his audience could be categorised into two types of people, and that it was difficult to please both:

The only difficulty resulted from the nature of the audiences, which are always to be expected in the lecture rooms of the metropolis; and in which students, men of science, persons in search of amusement, persons in search of information, are necessarily associated together.²⁰⁴

There were those that wanted to be amused, and there were those “in search of information” that wanted to put to use what they learnt in the lectures. Davy’s placing of his audience into two categories harked back to Thomas Garnett’s prediction that the Royal Institution would attract two types of auditors. Both Garnett²⁰⁵ and later Andrew Ure²⁰⁶ at Anderson’s Institution referred to their courses for workmen, as opposed to the courses they ran for the fashionable audiences, as the “most useful.” John Dalton, when discussing his audience at the Royal Institution in 1803, also singled out a “scientific part” from the rest of his audience.²⁰⁷ In an essay “The Parallels Between Art and Science” written for Dibdin’s *Director*, published on 30 May 1807, Davy explicitly distanced science from

¹⁹⁹ RI MM, 23 December 1799, 1:77.

²⁰⁰ RI MM, 23 December 1799, 1:78.

²⁰¹ RI MM, 23 December 1799, 1:78.

²⁰² RI MM, 23 December 1799, 1:78.

²⁰³ RI MM, 23 December 1799, 1:78.

²⁰⁴ Davy, *3 March 1810 lecture*, 11.

²⁰⁵ RI MM, 23 December 1799, 1:78-79.

²⁰⁶ *Anderson’s Institution Minutes, 1799-1810*, 21 June 1806, 108.

²⁰⁷ John Dalton, quoted in Treneer, *The Mercurial Chemist*, 88.

fashion.²⁰⁸ Davy wrote that science, using the refined arts as the foil, was “less connected with fashion and caprice.”²⁰⁹ Again, fashion was characterised as fickle as opposed to “durable.”²¹⁰ Yet fashion was not incompatible with chemistry – fashionable women like the Duchess of Devonshire and Lady Hippiisley also studied chemistry. The distinction between chemistry and fashion was an artificial construction.

The Managers had tried and failed to lure workmen and manufacturers to the Royal Institution. Instead a fashionable audience had claimed the Royal Institution, and chemistry ran the risk of being subject to female influence. A lecturer, the useful man of science, now needed to demonstrate to his critics that it was he who influenced his fashionable audiences, and not vice versa. As Jan Golinski has shown, contemporaries were quick to criticise Davy for his dependence on his upper-class female audience.²¹¹ As the Royal Institution’s earliest *Prospectus* constructed a difference between the philosopher on the one hand, and the manufacturer and the workmen on the other, lecturers sought to exclude themselves from fashion’s influence by insisting on a distinction between themselves and the fashionable women in their audiences. This distinction endured, as Higgitt and Withers have argued that later lecturers in the BAAS meetings used their female audience to delineate between themselves and a passive public that consumed science.²¹² Indeed, Davy, who professed in his lectures “it is not our intention to invite them [women] to assist in the laboratories,”²¹³ seems to have given later male lecturers the confidence to invite women into the lecture theatre but exclude them from the laboratory. Davy’s successor at the Royal Institution, William Thomas Brande (1788-1866), quoted Davy’s statement that women did not belong in the laboratory, along

²⁰⁸ Humphry Davy, “The Parallels Between Art and Science,” *The Director* 2 (30 May 1807): 193-198.

²⁰⁹ Davy, “The Parallels Between Art and Science,” 197.

²¹⁰ Davy, “The Parallels Between Art and Science,” 197.

²¹¹ Golinski, *The Experimental Self*, 74-75.

²¹² Higgitt and Withers, “Science and Sociability,” 26-27.

²¹³ Davy, *3 March 1810 lecture*, 37.

with other significant chunks of Davy's published 3 March 1810 lecture, word-for-word nine years later, this time in the lecture theatre of the London Institution.²¹⁴

The construction of fashionable women, women of influence from the upper classes, as antagonistic to projects of scientific utility endured at least until the mid-nineteenth century. The *Times* newspaper in the 1830s and 1840s used female audiences at the BAAS meetings to challenge the Association's claims to utility.²¹⁵ Moreover, Higgitt and Withers quoted William Buckland's (1784-1856) remark that a meeting could not be of "scientific utility" when women were present.²¹⁶ It is significant that Buckland did not want the BAAS meetings to be compared to "Albemarle dilettanti meetings" – a reference to the Royal Institution.²¹⁷

Higgitt and Withers have argued the same period that saw the creation of the professional scientist saw the creation of a "public" for science, a public typified by middle class women.²¹⁸ That public was created through nineteenth-century stereotypes of women as passive, and indeed Higgitt and Withers show that female audiences at the BAAS meetings largely conformed to those societal expectations that they would be docile and respectful.²¹⁹ Perhaps a nascent form of this female public for science can be seen in the demarcations made between "fashionable" and "scientific" audiences by the earliest lecturers and Managers of Anderson's and the Royal Institution. At Anderson's Institution, Garnett gave a separate "popular" course of lectures, from which he borrowed for the Royal Institution, advertised as "particularly interesting to the Ladies."²²⁰ John Anderson had even stipulated in his will that the popular course be called "The Ladies' Course of Physical Lectures," though the audience would contain Ladies *and* Gentlemen.²²¹ Separating out a "fashionable" part of the audience was a way for lecturers to check female influence at scientific institutions in the early nineteenth century.

²¹⁴ William Thomas Brande, *An Introductory Discourse, Delivered in the Amphitheatre of the London Institution* (London, 1819), 36-37.

²¹⁵ Higgitt and Withers, "Science and Sociability," 11.

²¹⁶ Higgitt and Withers, "Science and Sociability," 6.

²¹⁷ Higgitt and Withers, "Science and Sociability," 6.

²¹⁸ Higgitt and Withers, "Science and Sociability," 26-27.

²¹⁹ Higgitt and Withers, "Science and Sociability," 17.

²²⁰ *Anderson's Institution Minutes, 1796-1799*, 24 October 1796, 66.

²²¹ *Anderson's Will and Codicil*, 16-17.

4.5 Conclusion

Fashion and chemistry were not naturally incompatible, their union did not have to be incongruous – but lecturers sought to separate the fashionable from the scientific. The tension described by Diana Donald in Georgian society, where women were praised for encouraging projects of “useful improvement,” while at the same time female influence was resisted,²²² accounts for the welcoming of the female audience at the Royal Institution while lecturers simultaneously sought to segregate out a fashionable part of their audiences.

The first section of this chapter charted how the Royal Institution was assimilated into the season – a world where women from the upper classes had influence. While the efforts of the Managers to get workmen and manufacturers involved in the institution were not bearing fruit, Thomas Garnett, drawing on his experiences as a lecturer at Anderson’s Institution in Glasgow, suggested the Managers encourage ladies to attend. However, it was only after eight distinguished patronesses were appointed to manage female subscriptions that women began to subscribe to the Royal Institution. By 1803, the Managers, and Thomas Bernard in particular, recognised that it was Annual Subscribers, of whom about half were female, not Proprietors, who would provide the Institution with a steady source of income. Bernard thus made the Royal Institution more amenable to an upper-class female audience by placing more emphasis on the lecture programme than the Model Room. The new scientific Institution was shaped in its first decade by the culture of the Season, a culture directed by upper class women.

While the Royal Institution was used like the older venues of the Season as an excellent place to meet one’s friends, it also buttressed the image of upper class women as part of a service élite. As argued in the previous chapter, patrician males could throw themselves into politics to prove their worth to the nation – supporting the Royal Institution became one way that upper-class women could join the service élite. The Royal Institution’s distinguished patronesses acted in faith of the Royal Institution’s capacity to deliver useful science that would secure the existing

²²² Donald, *The Age of Caricature*, 80.

social order. The work of Viscountess Palmerston and Margaret Bernard, whose projects followed Rumfordian scientific philanthropy, was discussed in the previous chapter. Perhaps the most fashionable (and hence powerful) of all the distinguished patronesses was Georgiana, Duchess of Devonshire, whose support and studies of chemistry have been described elsewhere.²²³ In this chapter, the Duchess of Devonshire's chemical projects have been placed within the context of the distinguished patronesses fashioning themselves as a service élite. This chapter also provides the first scholarly account of the chemist Elizabeth Anne, Lady Hippisley. Diana Beaumont and Lady Hippisley's mineralogical interests and detailed management of their estates are comparable to the interests of the improving landlords that Morris Berman asserts ran the Institution in its first decade. I have shown that improving landlords could also be female.

The distinguished patronesses were rulers of opinion, women of influence whose patronage of the Royal Institution would persuade their peers to subscribe. As John Davy reflected, a handful of persons could render the Royal Institution fashionable, which would then make the Royal Institution popular. Indeed, fashionable, upper-class women were seen as responsible for setting by their example the moral standard for the nation. The Royal Institution offered a means for the distinguished patronesses to fulfill this responsibility, diffusing a "spirit of experimental investigation and improvement" among their peers.²²⁴ An appreciation for "mechanical improvements" was seen as good taste, and good taste was bound with its "inseparable companion" good morals.²²⁵ After the popularity of the Royal Institution had reached its zenith among the fashionable world in 1805, Thomas Frognall Dibdin was able to argue that the Royal Institution was correcting "perverted tastes."²²⁶

In the late-eighteenth century, fashion was seen as a source of female power and influence. While the zest for improvement among women from the upper classes

²²³ James, "'the first example...of an extensive scheme of pure scientific medical investigation,' 12-13 and 21-22; and Marelene Rayner-Canham and Geoff Rayner-Canham, "British women and chemistry from the 16th to the mid-19th century," 118.

²²⁴ *Prospectus of the Royal Institution*, 15.

²²⁵ *Prospectus of the Royal Institution*, 15.

²²⁶ Dibdin, "A Walk in London," 113.

was praised, there was also a resistance to female involvement in case women should gain too much power. Fashion and chemistry were not incompatible, but lecturers constructed an incompatibility to limit female influence at the Royal Institution. As Horner and Brougham feared, fashionable women did indeed have influence at the Royal Institution. By 1804, the Royal Institution had changed direction in order to cater to what the Managers believed were the interests of their Annual Subscribers. A programme of arts and science lectures overshadowed the projects such as the Model Room and School for Mechanics, whose aim was to give workmen a scientific education. The female audience also had a degree of influence over Davy's chemistry. The next chapter argues that Davy responded to the culture of his upper-class female audience, a culture of patriotism where the most popular writer was Sir Walter Scott, by making his chemistry chivalrous.

Chapter 5 Chivalrous Chemistry

5.1 Introduction

The wild *gas*, the fixed air is plainly broke loose: but we ought to suspend our judgement until the first effervescence is a little subsided, till the liquor is cleared, and until we see something deeper than the agitation of a troubled and frothy surface.¹

Edmund Burke, *Reflections on the Revolution in France* (1790)

One is alone above the tide
The winds and angry waves defied
Here, to her refuge virtue sharing
Here Art and Science fondly clung
And Hope and Freedom, sacred pair
Beamed all their fires concentrated there
Amid despair's despotic night
Shone far and wide, their beacon light.²

Eleanor Anne Porden, undated fragment of poem (c. 1815)

By the early-nineteenth century, the Anglo-Irish politician Edmund Burke had become synonymous with anti-French Revolution sentiments, and he had made chemistry synonymous with revolution. In 1790, Burke had made his negative opinions of the French Revolution well known by publishing his *Reflections on the Revolution in France*, which provoked among others Mary Wollstonecraft (1759-1797), and the chemist Joseph Priestley, to challenge Burke's assessment of the revolution. Burke rebuked Priestley for his support of the French Revolution, and furthermore insinuated that Priestley's Revolutionary sympathies in part came from his preoccupation with chemistry. Maurice Crosland and Jan Golinski have shown that when Burke wrote of the French Revolution, he used the language of

¹ Edmund Burke, *Reflections on the Revolution in France* (Dublin, 1790; 5th ed.) 8-9, original emphasis.

² Eleanor Anne Porden, undated fragment of poem, c. 1815, D311/25/1/8.

chemistry, and in particular, pneumatic chemistry.³ To capture a sense of violent social upheaval, Burke spoke of “wild *gas*, the fixed air” breaking loose, of “effervescence,” of liquor “agitated” and made “troubled and frothy.” In his essay published in the Royal Society of London’s *Philosophical Transactions* on the occasion of his being awarded the Copley Medal in 1772, Joseph Priestley had spoken of “agitated” and “frothy” liquors to describe his experiments with fixed air.⁴ Priestley had called the agitations of the liquor “amusing” – Burke’s agitated and frothy liquors were all together more sinister.⁵

One of Burke’s phrases that had particular resonance was his lament that the French Revolution had signalled the end of chivalry,⁶ and the revival of chivalry in the early-nineteenth century among the upper classes was a conscious echo of Burke.⁷ A chemistry that was chivalrous therefore would be a chemistry that opposed the French Revolution, would be compatible with Burke, and support the existing social hierarchy. Davy’s chemistry was chivalrous. The second of the two quotations is from a draft for a poem written by the young female poet and conforming Anglican, Eleanor Anne Porden. She was writing drafts for poems that commemorated the battle of Waterloo, around a quarter of a century after Burke published his *Reflections* (1790). Science “fondly” clings to Britain out of fear of Napoleon and his “despotic night,” as a maiden clings to her knight for protection. Porden had attended lectures at the Royal Institution since the age of nine, and her most famous works were war epics that subscribed to chivalry.⁸ She was not such an unusual figure – there were a substantial number of women who wrote war epics in this period.⁹ One of Porden’s epics, *The Veils, or The Triumph of Constancy*

³ Maurice Crosland, “Lavoisier, The Two French Revolutions and ‘the Imperial Despotism of Oxygen’” *Ambix* 42 (1995): 101-118, on 102 and Golinski, *Science as Public Culture*, 176-184.

⁴ Joseph Priestley, “Observations on Different Kinds of Air,” *Philosophical Transactions* 62 (1772): 147-264, on 149 and 155.

⁵ Priestley, *Observations on Different Kinds of Air*, 149.

⁶ Colley, *Britons*, 253.

⁷ Jane Rendall, “Women Writing War and Empire: Gender, Poetry and Politics in Britain during the Napoleonic Wars”, in Karen Hagemann, Gisela Mettelle and Jane Rendall (eds.) *Gender, War and Politics Transatlantic Perspectives, 1775-1830* (Basingstoke: Palgrave Macmillan, 2010): 265-283, on 278.

⁸ Eleanor Anne Porden to John Franklin, 4 June 1823, D3311/8/3/19.

⁹ Johns-Putra, *Heroes and Housewives*.

(1815), was filled with footnotes from Davy's chemistry and geology lectures.¹⁰ *The Veils* even featured an epic battle where chemical substances, including Davy's famous discoveries, potassium and sodium, became knights. A comparison of the above two quotes demonstrates how chemistry was politically transformed in the lecture theatre of the Royal Institution: before Burke had used chemistry to describe revolution, now Porden made chemistry chivalrous and thus anti-revolutionary.

This chapter looks at how this dissociation of chemistry from radical politics was achieved through the influence of the female audience at the Royal Institution. The previous chapter argued that Davy's chemistry lectures at the Royal Institution were assimilated into the fashionable world of London's West End. Davy's lectures coincided with the Napoleonic Wars (1803-1815), and, as Catriona Kennedy has pointed out, "national militarisation" became part of social life in Britain in this period – fashion and sociability were "interwoven" with militarisation.¹¹ For the upper classes in particular, there was a revival of chivalry during the Napoleonic era. The writings of Sir Walter Scott played a central role in their imagining of war through the lens of chivalry,¹² and the writer Maria Edgeworth directly compared Davy's lectures to Scott's poems. Women at the Royal Institution would transform chemistry from a means of articulating the social upheaval of the French Revolution, by absorbing it into their revival of chivalry.

The revival of chivalry is then tied to the appeal of Davy's chemistry lectures through the writings of his audience, in particular that of Porden's poetry, and expands on Adeline Johns-Putra's argument that Davy was Porden's model for a "knight of science."¹³ Davy was also able to model himself as a knight of science, using the popularity of chivalry among his audience as a context to stage dangerous experiments, and to cast himself as the hero of British chemistry fighting against the French chemists. To borrow from Samuel Taylor Coleridge's assessment of his friend

¹⁰ Eleanor Anne Porden, *The Veils, or The Triumph of Constancy* (London, 1815).

¹¹ Catriona Kennedy, *Narratives of the Revolutionary and Napoleonic Wars: Military and Civilian Experience in Britain and Ireland* (Basingstoke: Palgrave Macmillan, 2013), 28.

¹² Michael Paris, *Warrior Nation. Images of War in British Popular Culture, 1850-2000* (London: Reaktion Books, 2000), 23.

¹³ Johns-Putra, "Blending Science with Literature," 41-44.

in 1804, Davy was “more and more determined to mould himself upon the age in order to make the age mould itself upon him.”¹⁴ In making chemistry chivalrous, Davy was responding to the culture of his upper-class female audience.

Davy offered his services as a chemist to a nation at war. In the lecture theatre, Davy proposed that his new discoveries, potassium and sodium, metals that reacted explosively with water, might be used as chemical weapons of war. During the Napoleonic Wars, men of science began to apply mechanical principles to rockets used in warfare. Robert Fulton (1765-1815) spoke of warfare in terms of calculations: war became a science; courage merely “a calculation of some real or presumed advantage.”¹⁵ However, applying science to the art of war in this calculated, mechanical manner presented a challenge to the chivalric imagining of warfare. As a consolation, Davy, like Fulton and William Congreve, suggested that science might make modern warfare “less bloody and ferocious.” However, Davy used a further tactic – calculations were inimical to chivalric warfare, but chemical spectacle need not be. Rather than appealing to calculated advantages, Davy implied that one had to be courageous to use his dangerous chemical weapons, and indeed that courageousness was required in a chemist.

As argued in previous chapters, the Royal Institution appealed to an upper class that wanted to reassert their importance in the wake of political upheaval in France and to a nation at war. During the wars with Revolutionary and Napoleonic France, the upper classes were reinventing themselves as what Linda Colley has called a “service élite.”¹⁶ Davy was allowed among the ranks of the service élite to reinforce the image of a class that worked in the best interests of the nation. The alliance between Davy and his upper class audience brought chemistry into the service of the established order and away from radical politics. Golinski has contrasted the new style of Davy’s “safe” chemistry against the earlier, radical chemistry of Joseph Priestley, but Golinski assigned Davy’s audience a passive role in its formation – a

¹⁴ Samuel Taylor Coleridge, January 1804, *The Notebooks of Samuel Taylor Coleridge*, volume 2, entry 1855.

¹⁵ Robert Fulton, *Torpedo War, and Submarine Explosions* (New York: 1810), 21.

¹⁶ Colley, *Britons*, 192.

claim that this chapter seeks to challenge.¹⁷ This chemistry in service of the aristocracy was exemplified by Davy's forging a positive link between Edmund Burke and chemistry. The chemistry constructed by Davy and his female audience in the Royal Institution lecture theatre in the early-nineteenth century was a chivalrous chemistry under aristocratic control, a chemistry that had to be dissociated from the radical politics of the late eighteenth century.

5.2 Women, war and Sir Walter Scott

Linda Colley has argued that during the period in which Britain was at war with Revolutionary and then Napoleonic France, female patriotism reached unprecedented heights.¹⁸ Women from the upper classes used patriotic activities, activities such as raising subscriptions for the patriotic fund and crafting banners and flags for local volunteer and militia units, as a way to carve out a civic role for themselves.¹⁹ Patriotism could take varying forms and was of course influenced by class politics. Emma Macleod categorised at least five types of patriotism in the late-eighteenth century, including the "socially acceptable and politically sanctioned" type of female patriotism outlined by Colley.²⁰ Given that women from the upper classes dominated Davy's audience, this analysis is concerned with the patriotic expressions of women from the upper classes.

During the season, when they were attending the Royal Institution's lectures, some women also partook in what Catriona Kennedy has called "military tourism:" viewing naval fleets, visiting military fortifications and camps, and sharing those experiences through correspondence.²¹ Maria Josepha Stanley wrote to her sister on 3 May 1809 of taking advantage of the warm weather and travelling down the Thames to dine at Woolwich and tour the arsenal and dockyard.²² On 7 May 1804,

¹⁷ Golinski, *Science as Public Culture*, 285.

¹⁸ Colley, *Britons*, 260-262.

¹⁹ Colley, *Britons*, 260.

²⁰ Emma V. Macleod, "'Thinking Minds of both Sexes:' Patriotism, British Bluestockings and the Wars against Revolutionary America and France, 1775-1802," in Karen Hagemann, Gisela Mettelle and Jane Rendall (eds.) *Gender, War and Politics Transatlantic Perspectives, 1775-1830* (Basingstoke: Palgrave Macmillan, 2010): 247-264, on 260.

²¹ Kennedy, *Narratives of the Revolutionary and Napoleonic Wars*, 172 and 177.

²² Maria Josepha Stanley to Louisa Dorothea Clinton, 3 May 1809, *The Early Married Life of Maria Josepha Stanley*, 316.

Pleasance Smith, wife of James Edward Smith who lectured at the Royal Institution on botany, wrote in her diary that she had gone for a walk in Hyde Park in order to see 5,000 volunteers pass and salute the Duke of York.²³ The wars with Revolutionary and Napoleonic France had seen such regal spectacle “increase dramatically in scale and tempo.”²⁴ As Smith’s visit to Hyde Park exemplifies, public regal spectacle often included a military component. The military presence of the militia and volunteer regiments made the spectacle appear safer for polite consumption: the regiments not only lending glamour as part of the cult of heroism, but also promising crowd control,²⁵ increasingly important after “spectacle was politicised” in the wake of the French Revolution.²⁶ While Parisian natural philosophers tended to retreat from spectacle in the late eighteenth and early nineteenth century,²⁷ Davy had an élite audience who endorsed public spectacle, secured as it was by military presence.

Poetry, and in particular the poems of Sir Walter Scott, played a central role in “rendering modern war palatable” for the upper classes by viewing war through a “chivalric lens.”²⁸ The high-cost of Scott’s work priced-out low-income readers,²⁹ but nonetheless, he was one of the best-selling writers of the Napoleonic era.³⁰ He has been attributed with the transforming of war in the British upper-class imagination into a heroic spectacle.³¹ In Jane Austen’s *Persuasion* (1818), the heroine Anne Elliot singles out Walter Scott and Lord Byron as the “first-rate poets” of the age, mentioning Scott’s chivalric poems *Marmion* (1808) and *The Lady of the*

²³ Pleasance Smith, 7 May 1804, *Diary of Lady Pleasance Smith*, SRO 12/1.

²⁴ Colley, *Britons*, 212.

²⁵ Colley, *Britons*, 225.

²⁶ Simon Werrett, *Fireworks: Pyrotechnic Arts and Sciences in European History* (Chicago and London: University of Chicago Press, 2010) 224.

²⁷ Werrett, *Fireworks*, 224-225.

²⁸ Kennedy, *Narratives of the Revolutionary and Napoleonic Wars*, 174.

²⁹ Rendall, “Women Writing War and Empire,” on 277.

³⁰ William St Clair, *The Reading Nation in the Romantic Period* (Cambridge: Cambridge University Press, 2004), 221.

³¹ Rendall, “Women Writing War and Empire,” 272; Simon Bainbridge, *British Poetry and the Revolutionary and Napoleonic Wars: Visions of Conflict* (Oxford and New York: Oxford University Press, 2003), 120; and Paris, *Warrior Nation*, 23.

Lake (1810) in particular.³² By 1843, Pleasance, Lady Smith had collected nine volumes of Scott's poetry and twenty-one volumes of his "incomparable novels."³³

Women writers, wealthy younger women especially, were influenced by Scott's work.³⁴ Adeline Johns-Putra has remarked upon women writers' admiration of Scott's fusion of the personal with historical events – bringing the domestic into the war epic.³⁵ In her study of the reception of Walter Scott and Jane Austen, Annika Bautz concluded that Scott was more popular than Austen, as their historical component gave the reader the pleasure "of being introduced to something unfamiliar."³⁶ Austen's work in contrast, gave "pleasure in recognition," although the domestic realism of her work made her less interesting to her contemporaries than Scott³⁷ – Scott's work brought the domestic world into the male realm of war. Scott, then, presented an opportunity for women to tread on the previously male territory of the war epic. As Johns-Putra has shown, the "freeing up" of the rules of the epic meant a greater number of women could write in the epic genre.³⁸ Indeed, Johns-Putra noted that a "substantial number" of war epics were written by women during the Romantic era, including *The Veils, or The Triumph of Constancy* (1815) and *Coeur de Lion, or, the Third Crusade* (1822), both written by Royal Institution audience member Eleanor Anne Porden.³⁹

Jane Rendall, after surveying the periodicals of the Napoleonic era, argued that women responded to military events through poetry.⁴⁰ Such responses are seen in the writings of the women at the Royal Institution. Georgiana, Duchess of Devonshire, wrote *On the Death of Lord Nelson* in response to Admiral Horatio Nelson's death at the battle of Trafalgar, a poem that concluded with the lines:

³² Jane Austen, *Northanger Abbey and Persuasion* in four volumes (London: John Murray, 1818), volume 3, chapter 11. The work was begun in August 1815 and finished a year later.

³³ Pleasance Smith to Henry Reeve, 11 July undated, loose letter clipped to the front of *Diary of Lady Pleasance Smith of her visit to the continent with Lady Lacon, 1 May-29 Jul 1843 visiting Paris, Bern, Thun and Geneva*, SRO 12/2.

³⁴ Rendall, "Women Writing War and Empire," 277.

³⁵ Johns-Putra, *Heroes and Housewives*, 202.

³⁶ Bautz, *The Reception of Jane Austen and Walter Scott*, 61.

³⁷ Bautz, *The Reception of Jane Austen and Walter Scott*, 60-61.

³⁸ Johns-Putra, *Heroes and Housewives*, 15.

³⁹ Johns-Putra, *Heroes and Housewives*, 41-96.

⁴⁰ Rendall, "Women Writing War and Empire," 276.

Britannia glorying in her Hero's fame
On her victorious shield inscribes his name
Grateful proclaims the safety which he gave
But midst her triumph weeps upon his grave⁴¹

The Duchess of Devonshire's poem uses chivalry to imagine war. It conforms to the gender roles defined by chivalry, which prescribed that women needed male heroes for protection.⁴² Chivalry required "exaggerated gender poses,"⁴³ thus the female figure of Britannia is "grateful" for the "safety" given by her male knight Nelson, and dutifully "weeps upon his grave." Simon Bainbridge has argued that Scott's resurrection of chivalry allowed women to participate in this "warrior nation" through casting heroines in "archetypal supporting roles of women in war."⁴⁴ Johns-Putra also argued that the majority of war epics written by women tended to cast their heroines in the role of the "passive domestic woman."⁴⁵ Nevertheless, as Bainbridge argued, through writing war epics women also had the ability to imagine "the masculine emotions" of a warrior.⁴⁶ In the Duchess's poem, Britannia tastes the glory and triumph of the battlefield.

In the *Lady's Magazine*, fashion sat alongside science, and also sat alongside reports of the movements of British, allied and enemy troops. The January 1811 issue gave a biographical sketch of Lord Wellington,⁴⁷ the February 1811 issue included a tale of romance involving a soldier, "Margaret B.'s" *Memories of Montalbert*.⁴⁸ The May 1811 issue included the article "Particulars respecting Tycho-Brahe;"⁴⁹ a report on a new invention for the filtration of water awarded a silver medal by the Society of

⁴¹ Duchess of Devonshire, *On the Death of Lord Nelson*, dated October 1805. Part of the catalogue of the Fifth Duke of Devonshire, held at the archives of Chatsworth House, Derbyshire, CS5/1822.1.

⁴² Rendall, "Women Writing War and Empire," 278.

⁴³ Kennedy, *Narratives of the Revolutionary and Napoleonic War*, 174.

⁴⁴ Bainbridge, *British Poetry and the Revolutionary and Napoleonic Wars*, 146-147.

⁴⁵ Johns-Putra, *Heroes and Housewives*, 41-96.

⁴⁶ Bainbridge, *British Poetry and the Revolutionary and Napoleonic Wars*, 146-147.

⁴⁷ Anonymous, "Biographic Sketch of Lord Wellington," *The Lady's Magazine; or Entertaining Companion for the Fair Sex* 42 (January 1811): 5.

⁴⁸ Anonymous, "Memories of Montalbert," *The Lady's Magazine; or Entertaining Companion for the Fair Sex* 42 (February 1811): 50.

⁴⁹ Anonymous, "Particulars respecting Tycho-Brahe," *The Lady's Magazine; or Entertaining Companion for the Fair Sex* 42 (May 1811): 224.

Arts;⁵⁰ the number of troops in the French force that invaded the Iberian Peninsula from 1807-1811;⁵¹ and “The Female Warrior,” an extract from Hannah Cowley’s (1743-1809) war epic *The Siege of Acre* (1801).⁵² Science, fashion and female patriotic expression through poetry were all housed in the *Lady’s Magazine* as they were in the papers of Eleanor Anne Porden.

While restricting women, separate spheres ideology could at times be used by women to their advantage. Colley has shown that this limited opportunity was grasped by women living through the wars with Revolutionary and Napoleonic France, who took the female influence that was deemed so important to the running of a family and extrapolated it to help steer the nation.⁵³ As Kennedy observes, the patriotic activities described by Colley were promoted in diaries sold to women.⁵⁴ Yet the separate spheres ideology endorsed in these diaries could be used to women’s advantage, in so far as if something could be labelled as a domestic or moral matter, it would come under the realm of female influence. One example of such a commercial diary was the 1799 engagement diary belonging to Viscountess Palmerston, marketed as *The Ladies Useful Repository for the Year 1799* and bought from a local stationer in Southampton. The diary starts with a collection of prose and poetry, including *Verses sent to a Lady on the Morning she presented a Standard to the Loyal Associated Gentleman of Southampton*, in which a woman’s “powers” to contribute to “Britain’s glorious cause” are manifested in the standard.⁵⁵ Embroidered by the young women in her school, the standard also symbolised the duty that older women of influence and fashion had to lead by example, and is reminiscent of the schools opened by Viscountess Palmerston modelled on the scientific philanthropy of Count Rumford. Palmerston’s diary praised particular female patriotic activities while prescribing gender dichotomies

⁵⁰ Anonymous, “Improved filtration of water,” *The Lady’s Magazine; or Entertaining Companion for the Fair Sex* 42 (May 1811): 227.

⁵¹ Anonymous, “Foreign Affairs,” *The Lady’s Magazine; or Entertaining Companion for the Fair Sex* 42 (May 1811): 235.

⁵² Hannah Cowley, extract of *The Siege of Acre* (1801), published as “The Female Warrior” in *The Lady’s Magazine; or Entertaining Companion for the Fair Sex* 42 (May 1811): 232.

⁵³ Colley, *Britons*, 262-263.

⁵⁴ Kennedy, *Narratives of the Revolutionary and Napoleonic Wars*, 27-28.

⁵⁵ Viscountess Palmerston, *engagement diary 1799*, 19-20.

that asserted, “profound thought was the power of the man...Sensibility is the power of the woman.”⁵⁶ Although this was a prescribed gender dichotomy, it also provided an opportunity – women could have a complementary *power* to men.

Adeline Johns-Putra has argued that many of the war epics written by women did not just adopt separate spheres ideology – they “perpetuated” it.⁵⁷ Humphry Davy also used the domestic role of women prescribed by the separate spheres ideology to praise female attendance at his lectures. Davy described attendance of his lectures as “almost a duty” for women of the leisured classes, as their “influence in society,” the power of fashionable women to lead by example, was so strong.⁵⁸ This expression of female duty resonates with the male patriotic duty that was so audible at that time, for example in the words of Nelson often repeated after the Battle of Trafalgar in 1805, “England expects that every man will do his duty.” Davy professed that female education in chemistry was part of the role of the patriotic mother: “It may in some measure depend on her, whether he [her son] become an honour or disgrace to his country.”⁵⁹ For Davy, female patriotic duty was domestic but would have wider repercussions for the nation. However, women themselves could also justify their participation in what might otherwise be seen as male realms – science, war and war epics – by arguing that their participation in these realms was a domestic duty. When Eleanor Anne Porden’s fiancé entertained doubts over the propriety of her being a published poet, Porden declared that if she shrunk away from publishing her work she would be “guilty of a double dereliction of duty,” as her poetic talents were a gift from heaven, “cultivated” by her father.⁶⁰

Sir Walter Scott influenced women writers, and Humphry Davy’s lectures were compared directly with Scott’s poetry. When the acclaimed writer Maria Edgeworth went to see Davy lecture at the Dublin Society in December 1810, she made a direct comparison between Davy’s lecturing style and Scott’s popular poem about chivalry in the Scottish Borders, *The Lay of the Last Minstrel* (1805), remarking, “The

⁵⁶ Viscountess Palmerston, *engagement diary 1799*, 9.

⁵⁷ Johns-Putra, *Heroes and Housewives*, 54.

⁵⁸ Davy, *3 March 1810 lecture*, 38.

⁵⁹ Davy, *3 March 1810 lecture*, 38.

⁶⁰ Eleanor Anne Porden to John Franklin, 29 March 1823, D3311/8/3/5(i).

conclusions of some of his [Davy's] lectures were really as eloquent and beautiful as those of the old minstrel in the last lay."⁶¹ For Edgeworth, hearing Davy lecture was like hearing the poetry of Scott. Fruitful scholarship has been produced at the intersection of history of science and English literature that examines Davy as a poet and an important figure in the Romantic Movement, in particular through his friendship with Samuel Taylor Coleridge.⁶² However, if the interests of Davy's wealthy female audience are prioritised, it is Scott, not Coleridge, Robert Southey, or William Wordsworth, who comes to the fore. As Maria Edgeworth's remark upon Davy's lecturing style demonstrates, Davy responded to the culture of chivalry prevalent among his wealthy, well-read, female audience. After calling upon Davy in 1804, Coleridge remarked that his friend was "more and more determined to mould himself upon the age in order to make the age mould itself upon him."⁶³ To a large degree, Davy was successful: he and his audience would co-construct a chivalrous chemistry in the Royal Institution lecture theatre, a chemistry that was safe for aristocratic patronage.

5.3 Davy, "knight of science"

Eleanor Anne Porden connected chivalry to science in her draft of a poem that described science "fondly clinging" to Britain's shores for protection from Napoleon's "despotic night," as a knight might be expected to protect his maiden.⁶⁴ However, Porden made many more explicit connections between chemistry and chivalry in the work perhaps most praised by her contemporaries, her scientific poem *The Veils, or The Triumph of Constancy* (1815).⁶⁵ Walter Scott was named in Porden's preface to *The Veils*, as she reckoned that the perfect scientific poem

⁶¹ Maria Edgeworth to Mrs O'Breine, December 1810, *Women, Education and Literature: The Papers of Maria Edgeworth, 1768-1849. Part 2: The Edgeworth Papers from the National Library of Ireland*, from Microfilm (Malborough: Adam Matthews Publications, 1996) Cardiff University Special Collections, letter 780, reel 6, MS 10166/7.

⁶² Amin, *The Poetry and Science of Humphry Davy*; Levere, *Poetry Realized in Nature*; Ruston, "From 'The Life of the Spinosist' to 'Life': Humphry Davy, Chemist and Poet." The Davy Letters Project, which aims to publish the first ever edition of the collected letters of Humphry Davy and his circle, exemplifies this collaboration between scholars in the history of science and English literature.

⁶³ Samuel Taylor Coleridge, January 1804, *The Notebooks of Samuel Taylor Coleridge*, volume 2, entry 1855.

⁶⁴ Eleanor Anne Porden, undated fragment of poem, c. 1815, D311/25/1/8.

⁶⁵ See Eleanor Anne Franklin's (née Porden) obituary in *The Times*, 24 February 1825, 2e.

would need someone “with the scientific knowledge of Sir Humphry Davy, and the energy and imagination of Lord Byron and Mr. Scott.”⁶⁶



Figure 6. Portrait of Eleanor Anne Porden (1795-1825) by Mary Ann Flaxman (undated). Frontispiece, from E. M. Gell (Hon.), *John Franklin's Bride: Eleanor Anne Porden* (London: John Murray, 1930)

A tale of three maidens and their heroic knights, *The Veils* is crammed with footnotes from Davy's chemical and geological lectures. The second book of *The Veils*, renamed “The Earth” but originally named “The Battle,”⁶⁷ narrates an epic battle between the forces of the Gnome King, leader of the earth spirits, against the combined powers of the spirits of air and water. The battle of the second book also contains the most footnotes that reference Davy's lectures. The Gnome King's soldiers, the earth spirits, are minerals and metals personified. How the earth spirits will fare in the battle against fire and water depends on their chemical properties. Davy's latest chemical discoveries, potassium and sodium, make an appearance in the battle: the young “Potassion” wishes “to prove his valour in the

⁶⁶ Porden, *The Veils*, viii.

⁶⁷ The 1815 published edition of *The Veils* contains an erratum in the preface, “In the Title to Book II for the “The Battle,” read *The Earth*,” see Porden, *The Veils*, vii.

maiden fight” by challenging the king of the water spirits but is easily vanquished and bursts into flame, just like potassium metal bursts into flame when it comes into contact with water.⁶⁸ Sodion, Magnios, Calcion, Barion, Strontias and Ammonias meet the same fate, and “In flames they mingle with their parent earth,” a scene which is accompanied by an extensive footnote describing Davy’s discovery of the metals, their properties and reactions.⁶⁹

Earlier incarnations of *The Veils* show that Eleanor Anne Porden began writing her epic around the time she turned fifteen, when she was attending Davy’s lectures at the Royal Institution. In using the elemental beings of the Rosicrucian doctrine,⁷⁰ Porden followed Erasmus Darwin’s (1731-1802) *The Botanic Garden* (1791) and Alexander Pope’s (1688-1744) *The Rape of the Lock* (1712, 1714), as she acknowledged in her preface.⁷¹ Indeed, the earliest version of *The Veils* was titled *The Rape of the Veil*.⁷² Johns-Putra has demonstrated that Porden distanced herself from these writers by implying in her preface that her use of the doctrine had greater “scientific rigour.”⁷³ Likewise, Martin Priestman has argued that Porden’s scientific footnotes went into even more detail than Erasmus Darwin’s.⁷⁴

However, Davy’s lectures provided the substance not only for Porden’s scientific footnotes, but also the very mechanism she chose for her poem. *Elements of Chemical Philosophy* was first published in 1812, but it was based on the material Davy had used in his Royal Institution lectures. Davy’s introduction to *Elements* gave a history of chemistry from antiquity to the present. He spoke of the Rosicrucian philosophy, and attributed the origin of that philosophy to the alchemists of the early sixteenth century.⁷⁵ In his introduction to *Elements*, Davy even spoke of a

⁶⁸ Porden, *The Veils*, 90.

⁶⁹ Porden, *The Veils*, 90. In grouping ammonia among the metals, Porden was adhering to the theories Davy himself advanced. See Humphry Davy, *Elements of Chemical Philosophy* (London, 1812), 473-477 and 481-482.

⁷⁰ In the Rosicrucian Doctrine, supernatural beings represent the classical elements of air (the sylphs), earth (the gnomes), water (the nymphs) and fire (the salamanders).

⁷¹ Porden, *The Veils*, vii.

⁷² Eleanor Anne Porden, 3 July 1810, Attic Chest notebooks, second season, no. 27, D311/18/10.

⁷³ Johns-Putra, *Blending Science with Literature*, 49.

⁷⁴ Martin Priestman, *The Poetry of Erasmus Darwin* (Farnham: Ashgate, 2013), 255.

⁷⁵ Davy, *Elements of Chemical Philosophy*, 17.

“heroic age” of chemistry around the thirteenth to fourteenth century⁷⁶ – the age in which *The Veils* was set.⁷⁷ Although Johns-Putra used Davy’s earlier *Discourse Introductory* (1802) in her analysis, she did not use Davy’s later *Elements* textbook, written by Davy after he had the experience of delivering lectures at the Royal Institution for a decade. The *Elements* textbook provides a direct connection between the machinery and setting of Porden’s chivalric poem and Davy’s lectures.

The chemical battle between the elements of earth, fire and water is imagined by Porden using the language of chivalry, and is the same chivalric language that was being applied by Britain’s upper classes to construct a narrative of the Napoleonic War. Before the battle, Porden described the Gnome King addressing his metal and mineral warriors “in a speech that with a little alteration might have been addressed by the Duke of Wellington to the English before the battle of Waterloo.”⁷⁸ To an extent, Porden’s imagining of the battle in *The Veils* also adheres to chivalric gender norms. Davy used amianthus, a type of asbestos, in his electrochemical apparatus.⁷⁹ In *The Veils* Amiantha, a maiden that embodies the mineral amianthus, weaves her hero a scarf that is resistant to flame, and grieves over the body of her fallen brother, Asbestos.⁸⁰

Yet Porden provided scope for one of her female characters to become a warrior in battle, as one of the fire spirits takes up arms to avenge her father’s death.⁸¹ Cross-dressing female warriors were not uncommon in war epics written by women writers, although the female warriors’ stint on the battlefield tended to be short lived – a woman on the battlefield was unnatural and the heroines were punished with a swift demise.⁸² Nevertheless, Porden’s fire spirit would appear to support Simon Bainbridge’s argument that Walter Scott’s version of chivalry also gave scope

⁷⁶ Davy, *Elements of Chemical Philosophy*, 12.

⁷⁷ Porden, *The Veils*, 12. In a footnote, Porden referenced the Battle of Poitiers (1356).

⁷⁸ Eleanor Anne Porden, Manuscript of the Veils, D3311/22/1, on page 19.

⁷⁹ Humphry Davy, “The Bakerian Lecture: On Some Chemical Agencies of Electricity,” *Philosophical Transactions of the Royal Society of London* 97 (1807): 1-56. Knight, *Humphry Davy: Science and Power*, 61.

⁸⁰ Porden, *The Veils*, 72 and 107.

⁸¹ Porden, *The Veils*, 80.

⁸² Johns-Putra, *Heroes and Housewives*, 76-82.

for women to express the masculine emotions of a warrior.⁸³ Johns-Putra's reading of gender roles in *The Veils* also seems to agree with Scott's allowance of his heroines to experience the masculine emotions of a warrior. Porden's heroines, when unveiled, are compelled to make their own adventures into the natural world – they become “avowedly unfeminine” pupils of science.⁸⁴ Johns-Putra's analysis of *The Veils* identified Davy as the prototype for the “knight of science,” for both Porden's heroes and heroines, where scientific investigation is described as “man's penetration into nature's secrecy.”⁸⁵ Thus Johns-Putra linked Porden's *The Veils* with the Baconian programme of science as described by Carolyn Merchant,⁸⁶ albeit with scope for women to be involved in unveiling nature as “avowedly unfeminine” pupils of science.

When Porden read, imagined and wrote about warfare through a chivalric lens, she was not alone among the women in Davy's audience. Johns-Putra argued Porden viewed Davy as a “knight of science,” but her concept also fits into a wider revival of chivalry among Davy's audience. Moreover, the concept of Davy as the “knight of science” can also be used to illustrate the influence of the popularity of chivalry among his audience upon Davy, a link that Johns-Putra did not make in her analysis of *The Veils*. Davy had to grapple with the trend of chivalry among his audience, in doing so he presented himself as the knight of science – the age moulded itself upon Davy, but Davy also moulded himself upon the age.

Indeed, press reports of Davy's lectures reinforce the image of Davy as a knight of science. The *Kentish Gazette* reported Davy's ninth chemical lecture of the 1812 season, in which Davy speculated that all metals were in fact compounds. Davy observed that the “discoverer” who managed to decompose all the metals and identify their components (Davy was of course the likely candidate) would achieve “immortal honour” for himself and for “the age and country” in which the discovery

⁸³ Bainbridge, *British Poetry and the Revolutionary and Napoleonic Wars*, 146-147.

⁸⁴ Johns-Putra, “Blending Science with Literature,” 48.

⁸⁵ Johns-Putra, “Blending Science with Literature,” 44.

⁸⁶ Carolyn Merchant, *The Death of Nature. Women, Ecology and the Scientific Revolution* (San Francisco: Harper & Row, 1980), 188-191.

was made,⁸⁷ much in the way that Nelson achieved a “deathless fame” for Britannia in the Duchess of Devonshire’s poem *On the Death of Lord Nelson*.⁸⁸ Davy apparently proclaimed in his sixth chemical lecture of the 1811 season that if duty called, he would be a martyr for science, “that it was a duty to pursue and disclose the truth, and that he would rather be persecuted and die a martyr to its sacred cause, than live the slave of error, and be the parasite of false opinions.”⁸⁹

Press narratives of Davy’s lectures gave him a central role in a battle between French and English chemists. In the *Monthly Magazine*, Davy was the hero who rescued chemistry from the French nomenclature that had overcome the rest of Europe:

When the phlogistic system of chemistry was overthrown by that of Lavoisier, the chemists of France were joined by the philosophers of every part of Europe, and fortified by a new nomenclature, their theory seemed to bid defiance to all the attempts which were made to oppose its authority. Fortunately for the cause of science, a young philosopher, Mr Davy, appeared about the same period...⁹⁰

Such a challenge to French authority by the young philosopher for the “cause of science” is echoed by Porden in her draft of a poem that described Britain, to whom “art and science fondly clung,” as the lone challenger, the “one alone above the tide,” “defying” Napoleon Bonaparte’s “despotic night.”⁹¹

In his lectures, Davy made sure to highlight the dangers that a knight of science faced in his duty to pursue the truth. The voltaic battery that Davy used in front of his audience to “fuse” platinum metal and produce an “elastic gas” that Davy speculated was hydrogen, had the potential to cause “instantaneous death.”⁹² Davy recalled that, in experimenting, he had only survived the shock from his battery

⁸⁷ Anonymous, “Dr. Davy’s Lectures at the Royal Institution,” *Kentish Gazette*, 24 April 1812, 2a.

⁸⁸ Duchess of Devonshire, *On the Death of Lord Nelson*, CS5/1822.1.

⁸⁹ Anonymous, “Royal Institution,” *Observer*, 24 February 1811, 3a and *Caledonian Mercury*, 4 March 1811, 4a. Both newspapers printed the same report of the lecture.

⁹⁰ Anonymous, “Proceedings of Learned Societies, Royal Institution,” *Monthly Magazine*, 1 March 1811: 156-159, on 156-157.

⁹¹ Eleanor Anne Porden, undated fragment of poem, c. 1815 D311/25/1/8.

⁹² Anonymous, “Proceedings of Learned Societies, Royal Institution,” *Monthly Magazine*, 1 March 1811, 159.

because his dry hand was an “imperfect conductor.” He recounted his brush with death, “though it was extremely painful, he did not receive any permanent injury. On examining his hands, he found the skin burned in the part where the discharge had been made.”⁹³ James Dinwiddie (1746-1815), natural philosopher and experienced lecturer, was present at a lecture where Davy demonstrated the power of his 2,000 double-plate voltaic pile to “fuse” platinum. Dinwiddie recorded that Davy would even have the lecture theatre darkened so that the experiments would have the “best effect” on the audience.⁹⁴

⁹³ Anonymous, “Proceedings of Learned Societies, Royal Institution,” *Monthly Magazine*, 1 March 1811, 159.

⁹⁴ James Dinwiddie, 16 February 1811, notebook E11, Dalhousie University Archives (hereafter DUA), Halifax, Nova Scotia, manuscripts of James Dinwiddie, MS/2/726/17. James Dinwiddie’s notebooks have been digitised.

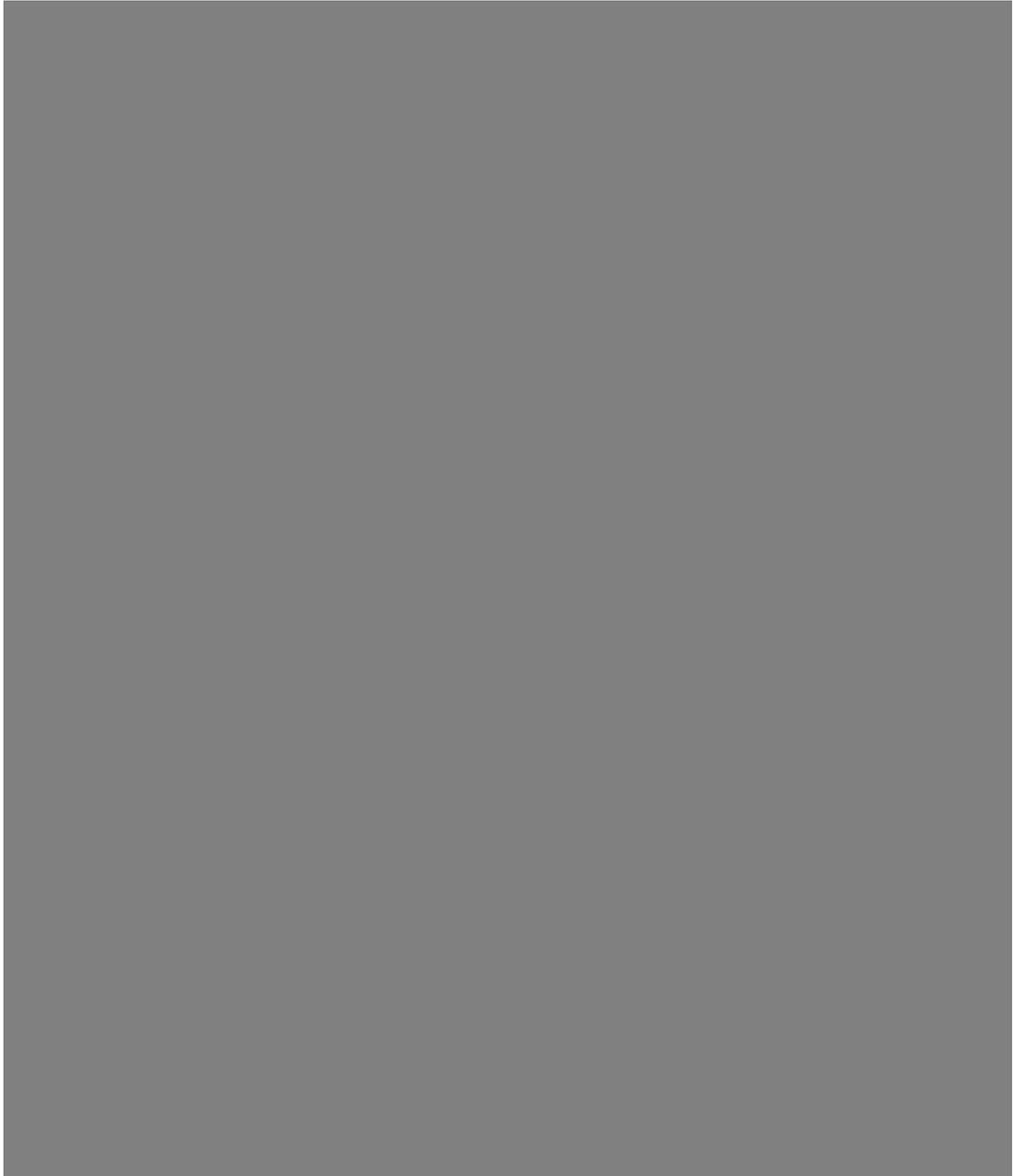


Figure 7. Alfred Reginald Thomson (1894-1979), “*Sir Humphry Davy demonstrates the electric arc at the Royal Institution, 1808*” in Frank Sherwood Taylor (1897-1956), *An Illustrated History of Science* (London: William Heinemann, 1955).⁹⁵

Davy used spectacular experiments not because his audience was fashionable, nor because chemistry lends itself to spectacle, but because his fashionable audience

⁹⁵ Thomson was appointed as an official “Air Ministry Artist” in the Second World War. Brian Frederick Foss, *British Artists and the Second World War, with Particular Reference to the War Artists’ Advisory Committee of the Ministry of Information* (University College London PhD Thesis, 1991), on 418. From his mid-twentieth century perspective, Thomson imagined Davy’s lectures to contain fewer women than I have argued were present. However, the darkened lecture theatre complements James Dinwiddie’s description nicely. With thanks to Melanie Keene for alerting me to this image.

wanted chivalrous chemistry. Guillaume Franoise Rouelle’s chemistry lectures at the Jardin du Roy in Paris, delivered between 1742-1768, also attracted a fashionable crowd and “children of the nobility” – but Rouelle did not use spectacular experiments.⁹⁶ Indeed, spectacular explosions at Rouelle’s lectures were the exception, and indicated rather that something had gone wrong.⁹⁷ Rouelle’s heroism “lay in his effort, his labouris,” “the heroism of the chemist-as-artist,” as championed in audience member Denis Diderot’s *Encyclopédie* (1751-1772).⁹⁸ Joseph Black’s (1728-1799) chemistry lectures at the University of Edinburgh, where he lectured from 1766 until 1795, were praised by Henry Brougham for their neatness and “perfect philosophical calmness.”⁹⁹ Recalling his experience as an auditor, Brougham remembered how Joseph Black made “admirable precautions, foreseeing and providing for every emergency” when performing demonstrations.¹⁰⁰ In contrast, Davy gave the appearance of courting danger. Davy was the knight of science, a hero who moulded himself on a British aristocratic ideal of chivalry, as championed in audience member Eleanor Anne Porden’s *The Veils* (1815).

Audience reactions to spectacle have to be historically situated. Simon Werrett has charted a shift in the behaviour of  lite audiences at fireworks displays: in the early modern period, to react to a firework display with terror or awe was seen as vulgar. However, by the latter half of the eighteenth century, a “cultivated fear” of sublime fireworks marked out  lite audience members well versed in the aesthetics of Edmund Burke from the vulgar.¹⁰¹ Before Davy had started lecturing, Maria Edgeworth had argued in her second edition of *Letters for Literary Ladies* (1799)

⁹⁶ Christine Lehman, “Between Commerce and Philanthropy: Chemistry Courses in Eighteenth Century Paris” in Bernadette Bensaude-Vincent and Christine Blondel (eds.) *Science and Spectacle in the European Enlightenment* (Aldershot: Ashgate, 2008): 103-116, on 108. See also Roberts, “Chemistry on Stage.”

⁹⁷ Lehman, “Between Commerce and Philanthropy,” 108.

⁹⁸ Lehman, “Between Commerce and Philanthropy,” 108.

⁹⁹ Henry Brougham, *Lives of Men of Letters and Science who Flourished in the Time of George III* in two volumes (London, 1845), on 1:346.

¹⁰⁰ Brougham, *Lives of Men of Letters and Science who Flourished in the time of George III*, 1:347. See also John R. R. Christie, “‘The Most Perfect Liberty:’ Professors and Students in the Age of the Chemical Revolution,” in Robert G. W. Anderson (ed.) *Cradle of Chemistry: The Early Years of Chemistry at the University of Edinburgh* (Edinburgh: Birlinn, 2015): 85-98, on 86.

¹⁰¹ Werrett, *Fireworks*, 216.

that chemistry was suited to female study because it was “not a science of parade” and “demanded no bodily strength.”¹⁰² For Maria Edgeworth, “literary ladies” were those women who had “cultivated their understandings” to make themselves “useful and agreeable,” not for the “purpose of parade.”¹⁰³ A few years later at the Royal Institution, Davy was showing a spectacular and dangerous chemistry to his chivalrous audience. Davy chose experiments that would appeal to his aristocratic female audience that imagined warfare through a chivalric lens – he emphasised the danger inherent in his experiments, in order to cast himself as the knight of science.

5.4 Chemistry’s challenge to chivalry

At the Royal Institution, Davy preached a science that could be applied to improve all manner of arts. As part of the utilitarian goals of the Royal Institution, Davy, in his lecture of 3 March 1810, offered the Royal Institution’s assistance in “the examination of the arms and materials employed in war.”¹⁰⁴ The *Morning Chronicle’s* report of Davy’s lecture agreed that improving the “materials of war” through “scientific investigation” could well be “in these times...of highest importance to the State.”¹⁰⁵ The Royal Institution had offered its laboratory and the assistance of its scientific members (mentioning Davy in particular) to the Lords Commissioners of the Admiralty and Commissioners of the Navy.¹⁰⁶ However, Davy did not get to apply his science to the problems of the British Admiralty until 1824 and, as Frank James has shown, the results were not a resounding success.¹⁰⁷ Davy’s suggestion to fit cast iron or zinc protectors was a clever way to prevent the corrosion of the copper-bottomed ships through applying electrochemical theory. However, Davy’s protectors, while preventing the corrosion of the copper, had the

¹⁰² Maria Edgeworth, *Letters for Literary Ladies. To which is added, an essay on the noble science of self-justification* (London, 1799; 2nd ed.), on 62.

¹⁰³ Edgeworth, *Letters for Literary Ladies*, 45-46.

¹⁰⁴ Davy, *3 March 1810 lecture*, 35.

¹⁰⁵ Anonymous, “Royal Institution,” *Morning Chronicle*, 8 March 1810, 3c.

¹⁰⁶ RI MM, 10 April 1809, 4:440.

¹⁰⁷ Frank A. J. L. James, “Davy in the Dockyard: Humphry Davy, the Royal Society and the Electro-Chemical Protection of His Majesty’s Ships in the Mid 1820s,” *Physis* 29 (1992): 205-225.

adverse effect of encouraging barnacles and seaweed to grow on the ship-bottoms following long voyages.

Over a decade earlier at the Royal Institution, Davy had faced an ideological obstacle to the application of chemistry to warfare. Scientific warfare, in particular a removed, calculated warfare, was antagonistic to Scott's narrative of war adhering to chivalric conduct. Imagining warfare as chivalrous allowed the upper-classes to disconnect with the harsh reality of, and indeed responsibility for, modern warfare.¹⁰⁸ Scott too thought that the nature of war had changed. War was becoming something that was calculated, its tactics rooted in "mathematical and arithmetical science," with a multitude of faceless soldiers.¹⁰⁹ As Rendall and Bainbridge have pointed out, the poet, educationalist and dissenter Anna Letitia Barbauld identified the root of Scott's popularity, the means through which upper class actors could reconcile themselves to bloody conflict.¹¹⁰ For Barbauld, a relationship of inverse proportions existed between war's ability to appeal to the sublime and a discourse that calculated and quantified battles, "war is most picturesque where it is least formed into a science."¹¹¹

An example of the scientised warfare that Barbauld spoke of can be found in the arguments of the American Robert Fulton, Member of the American Philosophical Society, who was granted an audience with Thomas Jefferson (1743-1826), James Madison (1751-1836) and other unnamed American statesmen to persuade them to adopt torpedoes as a means of defence, particularly against the British Navy.¹¹² He dismissed accusations that torpedo warfare was inhumane as "imaginary."¹¹³ Fulton has been credited with the invention of the world's first torpedo,¹¹⁴ at a time when

¹⁰⁸ Rendall, "Women Writing War and Empire," 278 and Kennedy, *Narratives of the Revolutionary and Napoleonic Wars*, 174.

¹⁰⁹ Bainbridge, *British Poetry and the Revolutionary and Napoleonic Wars*, 122.

¹¹⁰ Rendall, "Women Writing War and Empire," 273 and Bainbridge, *British Poetry and the Revolutionary and Napoleonic Wars*, 121.

¹¹¹ Anna Letitia Barbauld, "Scott's Lay of the Last Minstrel," *Annual Review* 3 (1804): 600-604, on 601. Scholars have attributed the review to Barbauld, although the review was anonymous.

¹¹² Fulton, *Torpedo War*, 3.

¹¹³ Fulton, *Torpedo War*, 43.

¹¹⁴ Roger Branfill-Cook, *Torpedo. The Complete History of the World's Most Revolutionary Naval Weapon* (Barnsley: Seaforth Publishing, 2014) 12.

its namesake, the electric fish, fascinated men of science, including Davy.¹¹⁵ Indeed, the battery invented by Alessandro Volta that Davy relied upon in his decomposition experiments in part owed its origins to William Nicholson's efforts to imitate the shocks of the electric fish.¹¹⁶ Unlike Davy and William Congreve, Fulton did not benefit from aristocratic patronage, and had attempted to sell his services to the British and French as well as the Americans. Fulton described conflict in terms of calculations, equating courage to "a calculation of some real or presumed advantage," and argued that it would be "no dishonour" for ships to surrender to boats equipped with torpedoes, and "tamely submit to superior science and tactics."¹¹⁷

As Simon Werrett has shown, Royal Institution subscriber William Congreve appropriated the technology of the Indian war rocket and repackaged them to the British Navy as "rational rockets."¹¹⁸ According to Congreve, as the rocket system was founded on philosophical principles, this negated the need for skilled mariners – although trials proved that Congreve's rockets only worked when the expertise of seamen was given. Congreve had the Prince of Wales as his patron, but many naval officers were against Congreve's rational rockets even before they were trialled at sea.¹¹⁹ The Duke of Wellington agreed to trial the rockets in November 1810 on the government's orders, though he claimed he was "no partisan" of Congreve's rockets, and that he had a "bad opinion" of them based on his recollections of the Indian war rockets upon which they were based.¹²⁰ Congreve's rational rockets were hostile to the etiquette of a chivalric warfare imagined by the upper classes.¹²¹

On the heels of an invasion scare, Congreve produced a publication that advocated his rational rocket system, and was dedicated to the Prince of Wales. Congreve argued that "burning and bombarding" the port town of Boulogne from a distance

¹¹⁵ Golinski, *The Experimental Self*, 180.

¹¹⁶ Pancaldi, *Volta*, 178.

¹¹⁷ Fulton, *Torpedo War*, 21.

¹¹⁸ Werrett, "William Congreve's Rational Rockets," 35-56.

¹¹⁹ Werrett, "William Congreve's Rational Rockets," 44.

¹²⁰ Arthur Wellesley Wellington to Admiral George Berkeley, 6 November 1810, quoted in John Gurwood (ed.) *The Dispatches of Field Marshall the Duke of Wellington*, in eight volumes (Cambridge: Cambridge University Press, 2010) 4:399.

¹²¹ Werrett, *William Congreve's Rational Rockets*, 48.

with his rocket system would bring a swift victory for Britain, proclaiming “we are now called upon to resort to, and justified in adopting, all the severities which can be exerted without dishonour.”¹²² To persuade an upper class that insisted on chivalry to employ scientific weaponry, both Congreve and Davy had to address the issue of “dishonour.” For Congreve, war was most “merciful” when brought to a decisive, swift end, made possible through his rational rockets.¹²³ Congreve’s rockets were successfully trialled against a French fleet stationed at Boulogne in 1806, ushering in an enduring practice whereby military rockets were improved by applying scientific principles.¹²⁴

Davy was pressurised into proving the use of his new discoveries, sodium and potassium metals, in line with the Royal Institution’s avowed orientation towards utility. According to James Dinwiddie, Davy concluded a lecture on sodium and potassium in 1809 with “a flourish against those who are perpetually inquiring/asking what use of these/such discoveries.”¹²⁵ Davy responded to the question “What is the use of these metals?,” a question that he was still being asked two years later, by suggesting that sodium and potassium could be used as weapons of war.¹²⁶ The absence of this suggestion in Davy’s published work hints that Davy was uncertain about whether his idea was feasible, although it was an idea that he had planted in his audience as early as July 1808, in the first lecture season that followed his first isolation of the metals in October 1807.¹²⁷

In his lectures, Davy told a history in which the chemical arts, through the invention of gunpowder, had “rendered men more independent from brutal strength, less personal and less barbarous.”¹²⁸ In a lecture in 1811, Davy was reported to have

¹²² William Congreve, *Memoir on the possibility, the means, and the importance, of the destruction of the Boulogne flotilla, in the present crisis, with the outline of a general system for the attack of the enemy’s naval depots and arsenals* (London, 1806), on 6.

¹²³ Congreve, *Memoir*, 6.

¹²⁴ Werrett, *Fireworks*, 241-242.

¹²⁵ James Dinwiddie, 23 February 1809, notebook E6, DUA MS/2/726/16.

¹²⁶ Anonymous, “Dr Davy’s Lectures at the Royal Institution,” *Observer*, 14 April 1811, 2d and “Royal Institution – April 13th,” *Caledonian Mercury*, 22 April 1811, 4a. Both newspapers published the same report.

¹²⁷ Anonymous, “Memoirs of the Progress of Manufactures, Chemistry, Science, and the Fine Arts,” *The Scot’s Magazine*, 1 July 1808, 523b.

¹²⁸ Anonymous, “Royal Institution,” *Morning Chronicle*, 27 January 1812, 3d.

told the story of an unnamed monk (perhaps a reference to Berthold Schwarz) who, through combining nitre, sulphur and charcoal, had made gunpowder, producing “an entire revolution in the art of war,” which “diminished” war’s “ferocity”, and made war “a branch of mathematical sciences.”¹²⁹ Like Congreve and Fulton, Davy even used a deterrent-style justification of scientific weapons. “As the instruments of war become more destructive,” Davy was reported to say, “wars became less bloody and ferocious,”¹³⁰ an argument that has often been repeated since to justify scientific weaponry. Scientific warfare lacked the heroic combat that characterised Scott’s poetry, so Davy, like his contemporaries Congreve and Fulton, offered as compensation the assertion that modern warfare was apparently less brutal.

However, Davy tried a further tactic to reconcile his audience to scientific weapons. Davy presented his scientific weapons with less of a focus on mechanics and calculations, and more of a focus on chemical spectacle. He showcased his latest discoveries, sodium and potassium metals, by demonstrating their explosive reaction with water in front of his audience. Indeed, Porden had used Davy’s violent experiments to imagine her fight between the knight Potassium and the king of the water elements.¹³¹ Louis Simond hinted that Davy’s experiments with potassium were among the favourites from his repertoire, “A small bit of potassium thrown in a glass of water, or upon a piece of ice, never fails to excite a gentle murmur of applause.”¹³² Again, Davy made sure to highlight the potential peril he put himself in when he reacted potassium with chloride compounds of phosphorus: James Dinwiddie recorded that Davy informed his audience “that in making the only experiment he had tried before the lecture, the retort was broken with such violence that he would not venture to perform the expt [experiment] in the same manner again.”¹³³ Rather than talking about scientific weapons in terms of calculation, Davy gave his potential chemical weapons a sense of chivalric glamour – one had to be courageous to use them.

¹²⁹ Anonymous, “Royal Institution,” *Observer*, 5 May 1811, 4c and “Dr. Davy’s Lectures,” *Royal Cornwall Gazette*, 11 May 1811, 4e. Both newspapers published the same report.

¹³⁰ Anonymous, “Dr Davy’s Lectures at the Royal Institution,” *Observer*, 14 April 1811, 2d and “Royal Institution – April 13th,” *Caledonian Mercury*, 22 April 1811, 4a.

¹³¹ Porden, *The Veils*, 90.

¹³² Simond, 24 January 1810, *Journal of a Tour and Residence in Great Britain*, 1:43.

¹³³ James Dinwiddie, 4 February 1809, notebook E6, DUA MS/2/726/16.

In his last work, *Consolations in Travel, or, The Last Days of a Philosopher* (1830), a book written when Davy knew his death was imminent, he warned potential chemists that in serving civilisation through chemistry, they would also put their person in danger:

The business of the laboratory is often a service of danger, and the elements, like the refractory spirits of romance, though the obedient slave of the magician, yet sometimes escape the influence of his talisman and endanger his person.¹³⁴

Davy chose to talk of the dangers of the laboratory in terms that were compatible with chivalry – there were spirits to be tamed by magicians with talismans. To be a chemist meant to continue serving others in spite of the danger to oneself. In his biography of the life of Humphry Davy, David Knight concluded from Davy's dialogue on chemistry in *Consolations*, "The chemist's life is therefore not merely worthy, but risky and adventurous, and scientific ambition is the highest kind."¹³⁵ In 1804, Samuel Taylor Coleridge became terrified that Davy's "attempts to enlighten mankind" would inflict "ghastly wounds" upon the chemist, although Jan Golinski has suggested that these wounds were a form of moral as opposed to physical injury.¹³⁶ Yet Davy also sustained physical wounds from his experiments: he contracted a life-threatening infection when making investigations into the best mode of ventilation for Newgate prison in November 1807,¹³⁷ and an explosion caused by heating a compound of chlorine and ammonia almost cost Davy his eye in 1812.¹³⁸ From 1799, Davy had experimented on himself with nitrous oxide in order to better understand its physiological effects, and his experiments routinely exposed him to toxic substances. While his siblings lived to see old age, Davy died aged fifty. The knight of science's life may have indeed been shortened by his chemical experiments.

¹³⁴ Humphry Davy, *Consolations in Travel, or, The Last Days of a Philosopher* (London, 1830), 252.

¹³⁵ Knight, *Humphry Davy: Science and Power*, 180.

¹³⁶ Golinski, "Humphry Davy's Sexual Chemistry," 29.

¹³⁷ Humphry Davy to the Gentleman of the Sub Committee of City Lands, 21 November 1807, City of London Archives, Guildhall. *Journal of the Committee on City Lands*, 99 (1807-1808), Davy Letters Project.

¹³⁸ Paris, *The Life of Sir Humphry Davy*, 369.

5.5 Davy among the service élite

The chivalric imagining of war in Britain was very much tied to class politics.¹³⁹ Colley described the British upper classes in this period as “heroes of their own epic,” appealing to the chivalric martial ideal to justify their station in society as the ruling class.¹⁴⁰ In the epic battle of Porden’s *The Veils* between the elements of earth and the elements of fire and water, a young hero, the noble-born Asbestos, is carried away from the battle to be given a grave worthy of his name, and not left “dishonour’d thus among the vulgar dead.”¹⁴¹ It was the upper classes that believed in a chivalric war, and those who opposed the aristocratic establishment often refused to see war through this same chivalric lens.¹⁴²

Davy characterised his audience as “the guardians of civilization and of refinement,” who through their patronage of the Royal Institution, were “becoming the friends and protectors of the labouring part of the community.”¹⁴³ The drive among the fashionable upper classes that attended Davy’s lectures to prove themselves useful and deserving of their high rank, and to lead the nation by their example, exemplifies Colley’s concept of a service élite. Overt displays of patriotism were part of the British upper classes’ reinvention of themselves as a service élite.¹⁴⁴ Male dress took on a functional, “quasi-military masculinity.”¹⁴⁵ Colley confined her argument about the dress code of the service élite to men, but in January 1801 it had become the fashion for women to wear military sashes.¹⁴⁶ The praise that the self-styled military heroes of the upper classes had “done their duty” was the approval most bestowed by their peers.¹⁴⁷ While male elites had many avenues open to them through which they could demonstrate their usefulness to the state,

¹³⁹ Paris, *Warrior Nation*, 24 and Kennedy, *Narratives of the Revolutionary and Napoleonic Wars*, 175.

¹⁴⁰ Colley, *Britons*, 177.

¹⁴¹ Porden, *The Veils*, 94.

¹⁴² Rendall, *Women Writing War and Empire*, 279 and Kennedy, *Narratives of the Revolutionary and Napoleonic Wars*, 175.

¹⁴³ Davy, *Discourse Introductory*, 21.

¹⁴⁴ Colley, *Britons*, 178.

¹⁴⁵ Colley, *Britons*, 187.

¹⁴⁶ Anonymous, “London Fashions,” *The Lady’s Magazine; or Entertaining Companion for the Fair Sex* 32 (January 1801): 39.

¹⁴⁷ Colley, *Britons*, 177.

not least to obtain a high rank in the army or to become actively involved in politics, their female counterparts were more constrained to sanctioned displays of patriotism, such as raising subscriptions or expressing patriotic sentiment through writing – or attending the Royal Institution.

Another strategy that the upper classes adopted to make themselves appear more useful to the nation was the controlled admission of talented but unpropertied and untitled individuals among their ranks.¹⁴⁸ Davy was a beneficiary of this strategy. Davy's talent as a chemist may have given him upward social mobility,¹⁴⁹ but his upward trajectory was made possible by the shaping of a service élite. Three years after Napoleon Bonaparte awarded Davy with *Le Prix Volta* in 1807, Maria Edgeworth had written to Davy to ask him to make corrections for a second edition of *Professional Education* (1808). She began her letter by joking that the Volta prize itself was secondary to "the far greater honour of exciting the Western Emperor's national jealousy, and anti-Anglican spleen."¹⁵⁰ Edgeworth signed off with a telling comment, "with the best wishes of the whole family for your fame, health and happiness — or for your happiness, health and fame, if that shall be the climax you prefer."¹⁵¹ The *Morning Chronicle* newspaper even quoted Davy as saying "Almost the only reward offered in these times to scientific excellence, is fame."¹⁵² As Davy sought a space in the ranks of the service élite, he made sure to honour the British heroes of science in his lectures, appealing to the names of two other knights of science, Francis Bacon, Viscount St Alban (1561-1626) and Sir Isaac Newton (1642-1727).¹⁵³ On his deathbed, Davy believed that too much fame was apportioned to politicians, warriors and statesmen in "civilised society," when what they had done (in comparison to men of science) was "in reality little."¹⁵⁴

¹⁴⁸ Colley, *Britons*, 191.

¹⁴⁹ Knight, *Humphry Davy: Science and Power*, 182.

¹⁵⁰ Maria Edgeworth to Humphry Davy, 21 January 1810, RI HD 26D/31.

¹⁵¹ Maria Edgeworth to Humphry Davy, 21 January 1810, RI HD 26D/31, original emphasis.

¹⁵² Anonymous, "Mr. Davy's Lectures on the Elements of Chemical Philosophy," *Morning Chronicle*, 24 February 1812, 3b.

¹⁵³ Humphry Davy, extract from a lecture on electrochemical science given in 1809, in John Davy (ed.) *The Collected Works of Sir Humphry Davy*, in nine volumes (London, 1840), 8:359.

¹⁵⁴ Davy, *Consolations*, 228.

Davy saw chemistry as a source of national pride. He claimed discoveries for British natural philosophers, and told his audience not to suffer the “the pretensions of foreigners.”¹⁵⁵ James Dinwiddie, in his notes from a lecture given by Davy on 18 December 1809, recorded Davy’s assertion that the French had merely “improved” pneumatic chemistry.¹⁵⁶ Davy cited the names of Joseph Black, Henry Cavendish (1731-1810) and Joseph Priestley to support his argument that the “materials” of pneumatic chemistry were “of British manufacture.”¹⁵⁷

In an introductory lecture on electrochemical science in 1809, Davy proclaimed that his audience at the Royal Institution was only superior to the populace of ancient Athens and Rome in two respects – they were superior in their religion, and superior in their knowledge of physical science.¹⁵⁸ The University and Public School curriculums, through their emphasis on the military heroes of the Greek and Roman classics, had “indoctrinated” the young men of the service élite to aspire to manly heroism.¹⁵⁹ That the classics were used to form martial, masculine identities in the upper classes questions George Foote’s assessment that Davy’s inclusion of historical and classical references was solely a reflection of feminine interests.¹⁶⁰ However, Porden also looked to Ancient Greece to inform her war epic: in *The Veils*, diamond, the “unconquer’d knight,” is described by Porden as possessing “Achilles’ strength and manly beauty.”¹⁶¹ Porden’s father had matched the boy’s public school curriculums by encouraging his daughter to learn Greek and Latin,¹⁶² and the literary society that she hosted in their family home was called the “Attic Chest.”

The pervasiveness of antiquarian themes in the Napoleonic cult of heroism is also exemplified in an essay written by Lavinia Forster (born 1774).¹⁶³ She wrote for Thomas Frognall Dibdin’s *The Director*, a publication that promoted the Royal

¹⁵⁵ Anonymous, “Royal Institution,” *Observer*, 3 March 1811, 2d.

¹⁵⁶ James Dinwiddie, 18 December 1809, notebook E7, DUA MS/2/726/16.

¹⁵⁷ James Dinwiddie, 18 December 1809, notebook E7, DUA MS/2/726/16.

¹⁵⁸ Humphry Davy, extract from a lecture on electrochemical science given in 1809, *The Collected Works of Sir Humphry Davy*, 8:359.

¹⁵⁹ Colley, *Britons*, 180.

¹⁶⁰ Foote, “Sir Humphry Davy and his audience at the Royal Institution,” 9.

¹⁶¹ Porden, *The Veils*, 69.

¹⁶² Johns-Putra, “*Blending Science with Literature*,” 36.

¹⁶³ Lavinia Forster subscribed to the Royal Institution for the season of 1805. See *Subscribers 1805*, 116.

Institution, on the subject of her father, the sculptor Thomas Banks' (1735-1805), Statue of the Complaining Achilles. Lavinia was the wife of the Royal Institution lecturer Reverend Edward Forster (1769-1828), who lectured on the history of commerce in 1807,¹⁶⁴ part of a set of fashionable London preachers including Sydney Smith, John Hewlett and Dibdin that Thomas Bernard engaged to lecture at the Royal Institution. Although the letter that formed part of the essay on the statue of Achilles was signed "an Englishman," Thomas Frognall Dibdin attributed the essay to Mrs Forster.¹⁶⁵ The essay praised the sculpture for speaking "good omens of the taste, impartiality, and just views of the patriotic society which there erected it."¹⁶⁶ For the service élite, a taste for art that celebrated the heroism of ancient Greece was further proof of their patriotism.

The Davy who saw his chemistry as a means to serve his country is in stark contrast to the image of Davy painted by mid-twentieth century historians of science. At the height of the Cold War, Gavin de Beer argued that in his grandfather's generation and before the "sciences were never at war," and used Davy as an exemplar in support of this.¹⁶⁷ Anne Treneer, one of Davy's biographers, marked Davy as part of a "war-weary generation," although it should be noted that in this case Treneer was analysing Davy's *Discourse Introductory* to his chemical lectures of 1802, which was published in a very rare period of peace between Britain and France.¹⁶⁸ Revised histories have shown that Davy in fact gained from the national rivalry between French and British chemists. Maurice Crosland challenged de Beer by suggesting that Davy "sometimes saw science in nationalistic terms."¹⁶⁹ Jan Golinski has described how over £1,000 of funds for the 2,000 double-plate voltaic pile that Davy used in his lecture demonstrations was raised in 1808 by appealing to the patriotic sentiment of the Royal Institution audience.¹⁷⁰ Davy gave the subscriptions

¹⁶⁴ RI MM, 5 January 1807, 4:220.

¹⁶⁵ Dibdin, *Reminiscences of a Literary Life*, 1:251.

¹⁶⁶ Lavinia Forster, "Banks's Statue of Achilles," *The Director* 1 (7 February 1807): 65-78, on 70.

¹⁶⁷ Gavin De Beer, *The Sciences Were Never at War* (Edinburgh, London, Melbourne, Johannesburg: Thomas Nelson and Sons Ltd, 1960).

¹⁶⁸ Treneer, *The Mercurial Chemist*, 85.

¹⁶⁹ Crosland, *Lavoisier*, 113.

¹⁷⁰ Golinski, *Science as Public Culture*, 215-216. See also Royal Institution Guard Book Volume 1, on page 45.

for his new voltaic pile as proof that the “munificence of a few individuals” in Britain was worth more than capital from the “government of a rival nation.”¹⁷¹

However, the patriotism of Davy’s audience should not be reduced to simple anti-French sentiment. Paris endured as a touchstone for British upper-class female culture. In January 1805, the year of the Battle of Trafalgar, the *Lady’s Magazine* was still describing the latest Parisian fashions.¹⁷² Eleanor Anne Porden visited Paris in 1821;¹⁷³ Jane, Lady Davy visited Paris with Sir Humphry Davy and Michael Faraday in 1813 (this trip, made while Britain and France were still at war, was not without its critics);¹⁷⁴ Mary Berry and the sculptor Anne Damer (1749-1828) went to Paris together during the brief peace of Amiens in 1802;¹⁷⁵ and Julia Hankey and the chemist Frederica Sebright met each other in Paris in 1816.¹⁷⁶

For the British upper classes, the French were the standard against which they measured themselves, and this applied to science too. While in Paris in 1816, the chemist William Hyde Wollaston (1766-1828) had taken Royal Institution audience member Julia Hankey to see the sights of the Paris Mint, the cabinets at the Jardin des Plantes and the Conservatoire National des Arts et Métiers. Back in London, Wollaston then took Hankey and her family to the Royal Mint so that she might “compare it with the French one to which it was far superior.”¹⁷⁷ When Eleanor Anne Porden visited Paris in October 1821 she too, like Hankey and Wollaston, visited the Conservatoire National des Arts et Metiers which she described in retrospect upon her return to London as “a truly magnificent collection,” and regretted that the “Agricultural Society” in London did not have a similar repository,

¹⁷¹ Humphry Davy, extract from a lecture on electrochemical science given in 1809, *The Collected Works of Sir Humphry Davy*, 8:355.

¹⁷² Anonymous, “Parisian Fashions,” *The Lady’s Magazine; or Entertaining Companion for the Fair Sex* 36 (January 1805): 32.

¹⁷³ Eleanor Anne Porden, Travel journal, France 7/09/1821-01/11/1821, D3311/16.

¹⁷⁴ Fullmer, “Humphry Davy’s Adversaries,” 151-152.

¹⁷⁵ Berry, *Extracts of the Journals and Correspondence of Miss Berry*, 2:165.

¹⁷⁶ Julia Hankey is recorded as a subscriber in the administrative archives of the Royal Institution on 17 February 1812, see *Ledger of Receipts 1812*, 1:11 and RI MM, 17 February 1812, 5:272. Julia Hankey’s memoirs were transcribed by the chemist Lionel Felix Gilbert (1893-1955) for a biography on William Hyde Wollaston, part of the Gilbert Papers, University College London Special Collections, box 1, file 3, enclosure A “Typed copies of references and memorials to Wollaston,” on 8-9.

¹⁷⁷ Julia Hankey, “Typed copies of references and memorials to Wollaston,” on 9-11.

just “a few small models thrust into one room.”¹⁷⁸ The need to compare English scientific institutions with their French counterparts endured: in 1843 Lady Smith visited the zoological gardens at the Jardin du Roy and remarked in her diary that they were “in every respect inferior to our Zoo Gardens - indeed not to be compared” – yet Lady Smith could not help but make the comparison.¹⁷⁹

Audience member Samuel Boddington was in Paris when the Bastille fell, and had written to his father six days earlier to describe the cabinet of natural history at the Palais of the Prince de Londe, which he described as indeed “worthy of a prince.”¹⁸⁰ At the Palais, Boddington and his companion happened upon a French gentleman, who was attentive to the Englishmen, pointing out the best fossils in the collection. Boddington was impressed by the gentleman’s manners, and remarked that the attention that was given them was “a striking trait of the polite manners of the French... The French have so much ease and vivacity so much elegance of form and neatness of dress that they are quite enchanting.”¹⁸¹ Catriona Kennedy has argued that British officers in the Napoleonic Wars continued to emulate the polite masculinity of French officers, and were far more critical of the Spanish and Portuguese officers who they fought alongside.¹⁸² Although the Napoleonic Wars indeed threatened French politeness as an ideal form of masculinity in Britain, it had some resilience among the middle and upper classes, including Davy’s audience. Eleanor Anne Porden recounted the conversation of Monsieur Mascrier, the driver of her carriage and a saddler by trade, when she and her father were travelling to Dieppe in September 1821. Porden proudly reported that Mascrier,

¹⁷⁸ Eleanor Anne Porden, 26 October 1821, Travel journal, France 7/09/1821-01/11/1821, D3311/16. It is unclear but Porden was perhaps referring to the Society of Arts – the Royal Institution’s Model Room was almost empty by 1810. The Conservatoire National des Arts et Metiers has been cited as a source of inspiration for Rumford when he was formulating his plans for the Royal Institution. See Elie Halévy, E. I. Watkin and D. A. Barker (trans.) *History of the English People in the Nineteenth Century*, in six volumes (New York: Barnes and Noble Inc., 1961), 1:566.

¹⁷⁹ Pleasance Smith, 13 May 1843, *Diary of Lady Pleasance Smith of her visit to the continent with Lady Lacon, 1 May-29 Jul 1843*, SRO 12/2.

¹⁸⁰ Samuel Boddington to Benjamin Boddington, 8 July 1789, part of the Boddington Family Collection, held at the London Metropolitan Archives, CLC/426 /MS10823/005B.

¹⁸¹ Samuel Boddington to Benjamin Boddington, 8 July 1789, CLC/426 /MS10823/005B.

¹⁸² Catriona Kennedy, “John Bull into Battle: Military Masculinity and the British Army Officer during the Napoleonic Wars,” in Karen Hagemann, Gisela Mettele, Jane Rendall (eds.) *Gender, War and Politics Transatlantic Perspectives, 1775-1830* (Basingstoke: Palgrave Macmillan, 2010): 127-146, on 139.

who had had to quarter two English dragoons for more than three months, admired the English cavalry horses and “spoke much of English discipline.”¹⁸³

In aping and admiring French customs, the British aristocracy were accused of “cultural treason.”¹⁸⁴ In the late eighteenth century, the British male aristocracy had dropped the dress code inspired by the court of Versailles, the *habit a la française*, which before the French Revolution had been ubiquitous. The fashionable women in Davy’s audience were in a position where they were even more liable of treason than their male counterparts – women were the leaders of fashion, and fashion was a “mischief” thought to be French in origin.¹⁸⁵ Fashion held the dual threat of subverting the hierarchy of both gender (as it gave power to women) and class – aristocratic fashions could be imitated by the lower classes.¹⁸⁶ Although he was elevated among the service élite, Davy’s new social position was never fully secure. This can be seen in the attacks made on his appearance, his failure to succeed in looking the part, as discussed in the previous chapter. However, Davy and his audience could turn to chivalry to mitigate the criticisms levelled against them: while fashion subverted gender and class hierarchy, chivalry reinforced them.

It is a mark of the cultural dependency of the British upper classes on France that chivalry, like fashion, was also given French origins. In *Consolations* (1830), Davy, through the voice of “The Unknown,” wanted to highlight the nobler qualities of his ideal chemical philosopher, and he looked to medieval France to do so. The Unknown remarked although his “parentage was humble” his family had descended from “old Norman stock,” and thus he had inherited “a pride of decorum, a tact and refinement even in boyhood, and which are contradictory to the idea of an origin from a race of peasants.”¹⁸⁷ On 23 September 1821, Eleanor Anne Porden composed a poem after visiting Rouen cathedral in Normandy in which she also traced her lineage to medieval Normandy: “Of Antient [sic] splendour, sprang her sires and mine,” said Porden of the Norman woman she knelt beside in the

¹⁸³ Eleanor Anne Porden, 10 September 1821, Travel journal, France 7/09/1821-01/11/1821, D3311/16.

¹⁸⁴ Colley, *Britons*, 166.

¹⁸⁵ Donald, *The Age of Caricature*, 86.

¹⁸⁶ Donald, *The Age of Caricature*, 86.

¹⁸⁷ Davy, *Consolations in Travel*, 224.

cathedral.¹⁸⁸ Porden appealed to the ghosts of those who were at the “proud zenith of their martial fame” to receive the daughter of their “kindred isle.”

In looking to France as a source of noble, chivalric qualities, both Davy and Porden echoed a history of chivalry as according to Edmund Burke. In the passage of Burke’s that was to become one of his most famous, Burke praised a France that was the home of gallant men rather than the Republic it had become. The passage prophesied that the mistreatment of Marie Antoinette, Queen of France (1755-1793), at the hands of the revolutionaries heralded the death of the age of chivalry:

Little did I dream that I should have lived to see such disasters fallen upon her in a nation of gallant men, in a nation of men of honour and of cavaliers. I thought ten thousand swords must have leaped from their scabbards to avenge even a look that threatened her with insult –But the age of chivalry is gone. –That of sophisters, oeconomists and calculators, has succeeded; and the glory of Europe is extinguished for ever.¹⁸⁹

It is noteworthy that Burke believed the age of “calculators” had replaced the age of chivalry, much like it was feared calculated warfare would replace more honourable, chivalrous codes of battle. Written before Marie Antionette was executed, Burke’s passage carried even more potency after the queen’s death. Linda Colley argued that women in Britain felt threatened in a way that was hitherto unknown to them after the guillotine proved that it would not discriminate between male and female victims. The Duchess of Devonshire was tormented by thoughts of the Queen of France’s death, but outrage was not confined to the aristocracy.¹⁹⁰ Colley used Mary Wollstonecraft’s description of the invasion of Marie-Antoinette’s chambers in Tuileries by the revolutionary mob to show that even those women who were radical were horrified by the “violation” of Marie-Antoinette.¹⁹¹

¹⁸⁸ Eleanor Anne Porden, “Rouen September 23rd,” Travel journal, France 7/09/1821-01/11/1821, D3311/16.

¹⁸⁹ Burke, *Reflections on the Revolution in France*, 112-113.

¹⁹⁰ Foreman, *Georgiana, Duchess Of Devonshire*, 279.

¹⁹¹ Colley, *Britons*, 255.

Chivalry, argued Burke, was what the nations of Europe had had in common. It was “generous loyalty to rank and sex,” preserving the class system and casting men as the defenders of a weaker womankind.¹⁹² Frederick George Byron (1764-1792) caricatured Burke’s apparent adulation of Marie Antoinette in *Frontispiece to Reflections on the French Revolution* (1790, see Figure 8). Indeed, many of Burke’s chivalric qualities seem antagonistic to the “most vaunted” British ideal of manly independence.¹⁹³ Chivalry required “proud submission,” “dignified obedience” and “subordination of the heart.”¹⁹⁴ Jan Golinski has argued that Davy’s “image of masculine self-assertion” was compromised by his “self-display” in the lecture theatre and his need for the aristocracy’s patronage.¹⁹⁵ In following Burke’s notion of chivalry, Davy invited criticism of his manly independence. Burke’s characterisation of chivalry was full of apparent contradictions, chivalry “kept alive, even in servitude itself, the spirit of an exalted freedom.”¹⁹⁶ Burke’s freedom meant submission to class and gender hierarchies. In his *Discourse Introductory* (1802), Davy agreed that an “unequal division of property and of labour” was the “very soul” of civilised society.¹⁹⁷ It was the neglect of chivalry that had allowed revolution to happen in France – chivalry must be preserved in Britain. Davy made sure that chemistry was seen to endorse chivalry rather than rival it. Chemistry would prevent rather than promote revolution.

¹⁹² Burke, *Reflections on the Revolution in France*, 113.

¹⁹³ Kennedy, “John Bull into Battle,” 131-132.

¹⁹⁴ Burke, *Reflections on the Revolution in France*, 113.

¹⁹⁵ Golinski, “Humphry Davy’s Sexual Chemistry,” 20.

¹⁹⁶ Burke, *Reflections on the Revolution in France*, 113.

¹⁹⁷ Davy, *Discourse Introductory*, 21.



Figure 8. Frederick George Byron *Frontispiece to Reflections on the French Revolution* (1790), courtesy of the British Museum.

When Davy listed his ideal patrons for science in his 3 March 1810 lecture, alongside the women whom he hoped would continue to attend his lectures “independent” of the latest fashions, he included statesmen, and he referenced two statesmen in particular: Jean-Baptiste Colbert (1619-1683), minister of Louis XIV,

and Edmund Burke. In Colbert, whom Davy was confident his audience would associate with the characteristics of the French that they wanted to emulate (as opposed to Revolutionary France), Davy constructed a history of economic superiority caused by patronage of the sciences, arts and manufactures:

That Colbert, Minister of Louis XIV, raised the power of the French nation, is known as an historical truth; and it is likewise known, that this was principally owing to the patronage which he so amply bestowed on Sciences, Arts and Manufactures; and a succession of such efforts, unless met by corresponding energies on our own part, would do more to diminish the great commercial superiority of Britain, than all the armies, and all the edicts, which have lately been so vainly opposed to our prosperity.¹⁹⁸

Davy alerted his audience that unless they learnt from the example of Colbert, and put all their efforts (and money) into championing the sciences, more damage would be done to British prosperity than could be inflicted by Napoleon's armies or the continental blockade. Endorsing Davy became a way for the élite to be of service. Moreover, in invoking the *ancien régime*, Davy used the same tactic as the Prince Regent, who filled Carlton House with relics of Louis XIV – an aesthetic challenge to the French Revolution.¹⁹⁹

In the same lecture in which he praised Colbert, Humphry Davy also praised the talents of “one of the most celebrated orators of modern times,” Edmund Burke, the man who had claimed that the French Revolution had heralded the end of chivalry.²⁰⁰ Davy linked Burke's skills as an orator to his knowledge of science. A speaker was at their most eloquent and impressive, Davy argued, when “harmonious combinations of words” were grounded in unquestionable realities and facts, and that this had been part of Burke's recipe for success:²⁰¹

One of the most celebrated orators of modern times, owed great part of the effect he produced to the copiousness of his instances, to the fullness, variety, and minuteness of his knowledge respecting the scientific Principles of the refined and common Arts; and it is this

¹⁹⁸ Davy, *3 March 1810 lecture*, 36.

¹⁹⁹ Colley, *Britons*, 215.

²⁰⁰ Davy, *3 March 1810 lecture*, 37.

²⁰¹ Davy, *3 March 1810 lecture*, 37.

circumstance, as much as his vehement and powerful manner, and his poetical imagery, and his wonderful sagacity, that will carry his memory illustrious into future ages.²⁰²

The validity of Davy's account for Burke's talents is less important to the argument here than the fact that Davy sought to establish a *positive* link between Burke and chemistry. After attending the first season of the Royal Institution's lectures, given by Thomas Garnett in 1800, the writer and political radical, Anna Letitia Barbauld, remarked that her friend Joseph Priestley could have played a central role at the Royal Institution, had his reputation not been ruined by his association with the French Revolution.²⁰³ However, the association between Priestley and the French Revolution was too strong, as Barbauld knew. In using Burke, Davy allied chemistry with the anti-revolutionists. Indeed, Davy presented chemistry as a means of maintaining the aristocratic establishment. In Thomas Allan's²⁰⁴ report of Davy's lectures of 1811, there are references to a benevolent God, a wise and powerful "author," that guaranteed the established order, that "order and harmony arise from what at first view seems derangement and confusion."²⁰⁵ Davy concluded his introduction to *Elements of Chemical Philosophy* with a similar sentiment.²⁰⁶ Davy steered chemistry away from Burke's description of "the troubled and frothy" surface of the French Revolution.

5.6 Conclusion

Chemistry's history took a chivalrous turn thanks to the female aristocratic audience at the Royal Institution. Davy's upper-class female audience were patriots, who wrote and read war epics and imagined warfare to be chivalrous. Davy was

²⁰² Davy, *3 March 1810 lecture*, 37.

²⁰³ Anna Letitia Barbauld to Mrs Kenrick, [undated] 1800, *A Memoir of Mrs Anna Lætitia Barbauld*, 1:226.

²⁰⁴ Thomas Allan (1777-1833) was a mineralogist and Proprietor of the *Caledonian Mercury* newspaper. His reports of Davy's 1811 geological lecture course were not only published in his newspaper, the *Caledonian Mercury*, they were also published as *Sketch of Mr Davy's Lectures on Geology, Delivered at the Royal Institution 1811*, a copy of which is kept in the British Library, UIN: BLL01000881717.

²⁰⁵ Thomas Allan, "Royal Institution – May 25th," *Caledonian Mercury*, 3 June 1811, 2b; "Royal Institution," *Chester Chronicle*, 7 June 1811, 3d; and "Royal Institution," *Lancaster Gazette*, 22 June 1811, 4d.

²⁰⁶ Davy, *Elements of Chemical Philosophy*, 60.

attuned to his audience's insistence in chivalry – reports of his lectures in the press and in the notebooks of James Dinwiddie attest to Davy's efforts to make the lecture theatre into a battlefield with dangerous experiments, a war against French chemists, and talk of sacrifice. Maria Edgeworth even made a direct comparison between Davy's lectures at the Dublin Society in 1810 and the poetry of Walter Scott, the writer at the centre of the revival of chivalry. Even Anna Letitia Barbauld, radical and champion of Priestley, placed Davy's name among those of Nelson and "gallant" Sir John Moore in her poem *Eighteen Hundred and Eleven* (1812).²⁰⁷ Davy moulded himself upon the age, and the age moulded itself upon him in turn.

In his analysis of *The Veils* (1815), Priestman stated "it would be hard to argue that Porden's poem has any strongly overarching view to put across, except perhaps that science ought to be fun, and poetry should still be able to handle it in new and inventive ways."²⁰⁸ However, Eleanor Anne Porden's *The Veils* is the seminal text of chivalrous chemistry. Porden was able to use Davy's lectures to produce a war epic that placed chemistry in harmony with the revival of chivalry in the early-nineteenth century, a revival that answered Burke's use of chemistry to describe the chaos of the French Revolution, and as a threat to upper class ideals of martial honour and status. A few years before *The Veils* was published, Barbauld published her poem *Eighteen Hundred and Eleven* (1812), in which she spoke of rescuing "Priestley's injured name."²⁰⁹ Her radical poem that criticised Britain for visiting war upon foreign shores was unfavourably reviewed. As Johns-Putra has argued, women who were in opposition to war were "barely tolerated" by the "warring society" of Napoleonic Britain.²¹⁰ Barbauld had recognised that the source of Walter Scott's popularity lay in his ability to make violent war picturesque. The radical Barbauld can be seen as a foil to the other women in Davy's audience who believed in the chivalric ideal and produced war epics that perpetuated that ideal.

²⁰⁷ Anna Letitia Barbauld, *Eighteen Hundred and Eleven, a Poem* (Philadelphia, 1812), 26-28.

²⁰⁸ Priestman, *The Poetry of Erasmus Darwin*, 255.

²⁰⁹ Barbauld, *Eighteen Hundred and Eleven*, 28.

²¹⁰ Johns-Putra, *Heroes and Housewives*, 95.

Davy was knighted by the Prince Regent on 9 April 1812.²¹¹ Noting that such an honour was “not often” bestowed upon men of science, Davy defended his knighthood as “proof that the court has not overlooked my humble efforts in the cause of science.”²¹² The knight of science had placed himself and chemistry at the service of the élite. He offered his new metals, sodium and potassium, as weapons of war. However, Davy was also forced to negotiate chemistry’s threats to the chivalric ideal, as did others who attempted to apply scientific principles, particularly through a calculated warfare. Like Congreve and Fulton, Davy offered as compensation the argument that scientific weapons would make warfare less bloody and ferocious, an argument that was regurgitated again throughout the twentieth century. However, unlike Fulton, who spoke of courage in terms of calculated advantages, Davy emphasised the dangerous side of chemistry. In pursuing the noble cause of chemistry, a chemist like the warrior had to have a certain amount of courage as his body was in danger.

To make chemistry chivalrous, Davy had to reconcile the popular image of Burke with chemistry. The choice of Colbert and Burke as examples of statesmen who had used and benefited from science was a calculated move by Davy. The choice of Colbert was necessary to promote the image of his audience as a service élite; the choice of Burke was necessary to bring chemistry into cooperation with aristocratic rule and away from radical politics. Chivalrous chemistry would not have appealed to William J. Ashworth’s later “business astronomers” with “an accountant’s view of the world,”²¹³ men like Francis Baily who “warmly admired” both the natural philosophy and political views of Joseph Priestley.²¹⁴ As they admired Priestley, they hated science that served aristocratic interests and relied on patronage, seeing Joseph Banks’ presidency over the Royal Society of London as symbolic of this science.²¹⁵ Later, when Davy succeeded Banks as President of the Royal Society, he

²¹¹ Anonymous, *Royal Cornwall Gazette*, 18 April 1812, 3b.

²¹² Humphry Davy to John Davy, 10 April 1812, quoted in *Memoirs of the Life of Sir Humphry Davy*, 1:434-5.

²¹³ William J. Ashworth, “The Calculating Eye: Baily, Herschel, Babbage and the Business of Astronomy,” *The British Journal for the History of Science* 27 (1994): 409-441, on 409.

²¹⁴ Ashworth, “The Calculating Eye,” 416.

²¹⁵ Ashworth, “The Calculating Eye,” 414.

would be tarnished too.²¹⁶ The Royal Institution's earliest projects, the School for Mechanics and the Model Room, had some Benthamite qualities: "provision for the mechanical training of inmates" was a standard feature of the "visionary workshops" of the later Enlightenment thinkers.²¹⁷ Both Samuel and Jeremy Bentham were among the Royal Institution's earliest subscribers. However, the Royal Institution had abandoned these projects. Ashworth contrasted the "Benthamite theme" of the business astronomers to "Burkean terrain"²¹⁸ – Davy's chemistry was located upon the latter.

²¹⁶ David Miller, "Between Hostile Camps: Sir Humphry Davy's Presidency of the Royal Society of London, 1820-1827," *British Journal for the History of Science* 16 (1983): 1-47, on 26-27.

²¹⁷ Simon Schaffer, "Enlightened Automata" in William Clark, Jan Golinski, and Simon Schaffer (eds.) *The Sciences in Enlightened Europe* (Chicago and London: The University of Chicago Press, 1999): 126-165, 150.

²¹⁸ Ashworth, "The Calculating Eye," 436.

Chapter 6 Royal Blue

6.1 Introduction

But I have more respect for *women of display*, than for women of real acquirements, who, from the terror of being called Blues, deny their right to be deemed so.¹

In *Detraction Displayed* (1828), Amelia Opie tried to take the insult out of the word bluestocking.² Opie was a well-known author, and had been given a life subscription to the Royal Institution in exchange for her husband, the painter John Opie, giving a course of lectures on painting in 1804.³ By 1828, the term bluestocking had become so insulting that Opie argued it threw a stigma on the cultivation of the female mind.⁴ Amelia Opie defended those women who made a display out of learning, an accusation levelled against the women who attended the Royal Institution lectures. She argued that it was better to be a “woman of display,” who made a show of her learning even if she had little to be proud of, than a learned woman who pretended to be ignorant out of fear of being called a bluestocking.

The Bluestocking Circle was an intellectual community first established in the mid-1750s that pivoted upon the salons of Frances Boscawen (1719-1805), Elizabeth Vesey (c.1715-1791), and Elizabeth Montagu (1718-1800), and later on a “second generation” of Bluestockings, including Hester Lynch Piozzi (1741-1821) and Mary Delany (1700-1788).⁵ There are parallels between the reputations of chemistry and the term bluestocking at the end of the eighteenth century. As chemistry was associated with the radical Joseph Priestley, the word bluestocking had started to be associated with radicals like Mary Wollstonecraft and Anna Letitia Barbauld,

¹ Amelia Opie, *Detraction Displayed* (London, 1828), 265, original emphasis.

² Note on capitalisation. Only in reference to the historical group of Bluestockings will the term will be capitalised.

³ RI MM, 23 January 1804, 3:204. John Opie repeated the course on painting in 1805 and 1806, see RI MM, 14 January 1805, 4:9; 27 January 1806, 4:139; and 12 May 1806, 4:180.

⁴ Opie, *Detraction Displayed*, 262.

⁵ Nicole Pohl and Betty A. Schellenberg, “Introduction. A Bluestocking Historiography,” in Nicole Pohl and Betty A. Schellenberg (eds.) *Reconsidering the Bluestockings* (San Marino, California: Huntington Library, 2003): 1-19, on 5.

despite the leading Bluestockings of the mid-eighteenth century being conservative in their political views. In her entry in the Oxford Dictionary of National Biography for the Bluestocking Circle, Elizabeth Eger dated the cessation of Bluestocking activity as c. 1795.⁶ Eger has also argued that it is “necessary to turn to fiction” in order to find the intellectual legacy of the Bluestockings in the nineteenth-century, citing the examples of Jane Austen and Charlotte Brontë (1816-1855).⁷

Sylvia Harcstark Myers has also argued the Bluestocking Circle was no longer a “discernible phenomenon” in the nineteenth century.⁸ Following the French Revolution, Myers argued that the “idea” of the Bluestockings, a network of men and women who supported the social and literary activities of each other, “was probably no longer viable.”⁹ Myers stated that the death of Elizabeth Montagu in 1800 “seemed the end of an era.”¹⁰ Both statements were qualified with “seemed” and “probably,” indicating that the timeline for active Bluestockings was perhaps open to extension. Gary Kelly has argued that the Bluestockings were known to the nineteenth-century public through their posthumously published letters, but implied there were no living Bluestockings.¹¹

However, subscribers to the Royal Institution were involved in Bluestocking-type activities and moreover even referred to themselves as bluestockings. In 1811, Mary Sotheby (1759-1834), wife of the poet and then retired army officer William Sotheby (1757-1833),¹² had proposed to Maria Josepha, Lady Stanley, that they form “a dining club of four families to meet by turns at each others’ houses.”¹³ Of the “four families” – the Stanleys, the Sothebys, the Morritts and Jane Apreece

⁶ Elizabeth Eger, “Bluestocking circle [bluestockings], act. c. 1755 – c.1795,” *Oxford Dictionary of National Biography*, accessed 1 July 2018.

<http://www.oxforddnb.com/view/10.1093/ref:odnb/9780198614128.001.0001/odnb-9780198614128-e-63013>.

⁷ Elizabeth Eger, “The Bluestocking Legacy” in Elizabeth Eger and Lucy Peltz (eds.) *Brilliant Women: 18th-Century Bluestockings* (London: National Portrait Gallery, 2008): 126-151, on 134.

⁸ Myers, *The Bluestocking Circle*, 269.

⁹ Myers, *The Bluestocking Circle*, 269.

¹⁰ Myers, *The Bluestocking Circle*, 269.

¹¹ Kelly, “General Introduction,” 1:l.

¹² Mrs Sotheby subscribed to the lectures on 18 February 1811 and again in 1812, see RI MM, 18 February 1811, 5:187 and *Ledger of Receipts 1812*, 1:13. Her husband subscribed in 1812, see *Ledger of Receipts 1812*, 1:24.

¹³ Maria Josepha Stanley to Serena Holroyd, 26 February 1811, *The Early Married Life of Maria Josepha Stanley*, 332.

(who would later become Humphry Davy's wife) – three of the ladies held subscriptions to the Royal Institution. In common with William Sotheby and others of the service élite, John Bacon Sawrey Morritt (1771-1843) had volunteered for his local militia in 1803. Davy knew the Morricts well, visiting their country estate Rokeby Park in Yorkshire in the summer of 1815.¹⁴

Upon hearing about Mrs Sotheby's proposed dining club, Lady Stanley's husband, Sir John Thomas Stanley (1766-1850), joked, "we shall be very *blue*."¹⁵ In 1803, Sir Gilbert Elliot exclaimed that he would "soon be as blue as Anna Maria!" (Lady Anna Maria was Elliot's wife) on account of his being "Member of the Royal Society of Edinburgh, F.R.S. of London, Student at the Royal Institution, and LL.D."¹⁶ The evening after she attended the first ever lecture at the Royal Institution given by Thomas Garnett on 4 March 1800, Louisa Dorothea, Lady Clinton went to "a blue-stocking party at Miss Leighton's."¹⁷ Miss Leighton was a subscriber to the Royal Institution and had been recommended to the Institution by Viscountess Palmerston.¹⁸ Lady Clinton also told her sister about drinking tea that April with "a blue party at Mrs Goodenough's,"¹⁹ possibly the wife of a George Goodenough, Esq, who gave the Tax Office as his address, and who was made a Proprietor for helping the Royal Institution with its taxes.²⁰

A comparison of the activities and networks of the men and women at the Royal Institution with those of the eighteenth-century Bluestockings reveals similarities between the earlier and later groups. Like the eighteenth-century Bluestockings, women at the Royal Institution pursued philanthropic projects and presented learning as virtuous. Female intellect flourished under the "intellectual companionship" of men, and networks of female writers supported the production

¹⁴ Humphry Davy to Henry Boase, 27 August 1815, British Library, Add. 29281, ff. 72-74. Davy Letters Project.

¹⁵ Maria Josepha Stanley to Serena Holroyd, 26 February 1811, *The Early Married Life of Maria Josepha Stanley*, 333. Original emphasis.

¹⁶ Gilbert Elliot to Lady Minto, 5 February 1803, *Life and Letters of Sir Gilbert Elliot*, 3:269.

¹⁷ Louisa Dorothea Clinton to Maria Josepha Stanley, March 1800, *The Early Married Life of Maria Josepha Stanley*, 189.

¹⁸ RI MM, 17 March 1800, 2:21.

¹⁹ Louisa Dorothea Clinton to Maria Josepha Stanley, April 1800, *The Early Married Life of Maria Josepha Stanley*, 197.

²⁰ RI MM, 4 August 1800, 2:113.

of literary work.²¹ This chapter then disputes Eger, Kelly and Myers' implication that there was no new generation ready to take up the mantle of the Bluestockings at the beginning of the nineteenth century.

Nevertheless, the men and women who called themselves bluestockings at the Royal Institution were operating in a changed environment to their predecessors – female intellectuals had become associated with “revolutionary insubordination, disruption, and violence.”²² I do not wish to dispute that bluestocking became a “decisively” pejorative term in the nineteenth century,²³ although there were men and women at the Royal Institution who used the term in its original sense. Sylvia Harcstark Myers has argued that “‘bluestocking’ was a name around which associations with and feelings about intellectual women could cluster.”²⁴ As the female audiences at the Royal Institution increased in fame, the history of the term bluestocking became intertwined with that of the Institution. The satirical bluestocking in Thomas Moore's comic opera, *M.P. or; The Blue-stocking* (1811) was more of a chemist than a writer, marking her out from earlier Bluestockings. I argue that the fame of the Royal Institution and its female audience best explains this chemical turn of bluestocking satire.

The first Bluestockings had exercised their cultural influence primarily as literary hostesses rather than as published “authoresses.” As hosts and guests, women at the Royal Institution were able to contribute to and even direct the intellectual discussions in the more intimate gatherings that often followed lectures. However, the influence of these hostesses as cultural arbiters, as rulers of opinion, was resisted. Literary hostesses were satirised for being vain.²⁵ In London's fashionable circles, women, more so than men, were liable to be labelled as pedants – of making a show of their knowledge. In this way, women were pressured to conceal their learning, lest they run the risk of being called a pedant. Women were able to ignore this if they were outsiders, as was the case with Anne Louise Germaine,

²¹ Kelly, *Bluestocking Feminism*, 1:x.

²² Kelly, *Bluestocking Feminism*, 1:l.

²³ Kelly, *Bluestocking Feminism*, 1:l.

²⁴ Myers, *The Bluestocking Circle*, 303.

²⁵ Haslett, “Bluestocking Feminism revisited,” 440.

Madame de Staël-Holstein (1766-1817) when she visited London in 1813, or with Amelia Opie, who wrote *Detraction Displayed* (1828) as a Dissenter living in Norwich. Within the fashionable, conforming circles of London, however, the balance between being a ruler of opinion rather than a woman of display was harder to strike.

6.2 A new generation of Bluestockings

It is significant that men as well as women at the Royal Institution called themselves “blue.” When the Bluestocking Circle was first established, both the men and women of that circle were known as Bluestockings.²⁶ Citing the early history of the Bluestockings in 1828, Amelia Opie argued that *both* men and women who met together for the laudable purpose of “rational conversation” ought to be proud of being called blue, and that applying the term exclusively to women was “erroneous.”²⁷ As early as the 1770s, however, the term had begun to be applied exclusively to the women of the Circle, who were more talked about than their male counterparts.²⁸ The term bluestocking came to have less of a precise meaning, signifying any woman that had intellectual ambition regardless of whether she was part of the Circle or not – in the aftermath of the French Revolution the term was applied to radical female intellectuals. As Kelly has remarked, this association of the Bluestockings with radicalism was something of a paradox, given that the original Bluestockings were hostile to the French Revolution and radical reform at home.²⁹

Kelly framed the establishment of the first Bluestocking Circle against the backdrop of a “cultural revolution,” an alliance between progressive gentry and the professional middle classes.³⁰ The Bluestockings adopted the social mores associated to this latter group lower in the class hierarchy. Instead of playing cards and drinking alcohol, the Bluestockings conversed over tea. The humble blue-worsted stocking, an item of *male* (not female) apparel, stood in opposition to the luxurious black and white silk stockings worn by the gentlemen of the court. The

²⁶ Gary Kelly, *Bluestocking Feminism*, 1:ix. Pohl and Schellenberg, *Reconsidering the Bluestockings*, 4.

²⁷ Opie, *Detraction Displayed*, 260.

²⁸ Kelly, *Bluestocking Feminism*, 1:x.

²⁹ Kelly, *Bluestocking Feminism*, 1:xi.

³⁰ Kelly, *Bluestocking Feminism*, 1:xiii.

blue-worsted stocking was a rejection of the luxury of court culture with its chivalrous deference to women.³¹ Instead, “Bluestocking Philosophy” was committed to intellectual companionship between the sexes.³²

The Royal Institution was also seen as a means to improve the reputation of the aristocracy, this time in promoting the image of a service élite in the aftermath of the French Revolution. Caricatures of the 1790s and early-nineteenth century show this was an era when both monarchy and aristocracy were under attack, particularly the antics of the court of the Prince Regent. Attacks came from radicals but also they came from within, from those “aristocratic and gentry-class Tory reformers” of the type found at the Royal Institution.³³

Leonard Horner, educated at the University of Edinburgh like the prominent critic of the Royal Institution, Henry Brougham, criticised his friend Davy for imitating “court dress.”³⁴ The fashionable world of West End London also formed the basis of John Bostock’s taunts to his fellow chemist and physician Alexander Marcet (both Bostock and Marcet had also studied at the University of Edinburgh). Bostock professed that he was unsurprised to find that his friend Marcet had developed gout, surrounded as he was by the “elegancies and luxuries of the Metropolis, rolling in his chariot, and faring sumptuously every day.”³⁵ Bostock, who lived south of Liverpool, prescribed to Marcet his regimen of rising before dawn, walking the fields and digging the garden – but of course, Bostock concluded, such a lifestyle was impossible in Russell Square, and therefore Marcet would have to be satisfied with his gout. In Bostock’s teasing of Marcet ran an underlying accusation that the fashionable world of the Metropolis, a world of “London politeness” and “court dialect,” was not suitable for men of science and would damage “the cause of

³¹ Kelly, *Bluestocking Feminism*, 1:ix.

³² Kelly, *Bluestocking Feminism*, 1:x.

³³ Donald, *The Age of Caricature*, 100.

³⁴ Leonard Horner to Alexander Marcet, 10 April 1821, *Memoir of Leonard Horner*, 1:191. See Chapter 4, “‘A very incongruous union:’ fashion and chemistry,” 140-141.

³⁵ John Bostock to Alexander Marcet, 8 December 1810, UCL Special Collections Gilbert papers, box 4, file 1, enclosure B.

science" itself.³⁶ It was a world apart from the University of Edinburgh and a world where women had a larger degree of influence.

The distinguished patronesses were reformers, but not radicals. Aristocracy and monarchy needed to amend their ways and adapt to the new service élite, rather than be abolished altogether. Like the first Bluestocking Circle, the distinguished patronesses had "vested interests" in the established order, with wealth derived from inherited estates and male relatives or husbands kept in positions of power by the existing social hierarchy.³⁷ Following an unresolved incident at the House of Commons, where a pair of fustian breeches was found on fire in a water closet beneath the House, Viscountess Palmerston made a joke to her husband at the expense of radical reformers:

What a very odd incident is this Fustian attack upon the House of Commons. It certainly must be a plot of the *sans culotte* party. Mischief was undoubtedly intended, though the conspirators proved their want of judgement in their choice of the means they made use of to carry with effect through the House their flaming reform.³⁸

Viscountess Palmerston's quip shows that she did not consider radical political reform a sensible or serious option. Even before the Terror began and public opinion in England was swayed she had no sympathy for Republican France's *sans-culottes*. Furthermore, her remarks on Mary Wollstonecraft's political stance were just as dismissive. She added a one-line postscript that she had been reading *A Vindication of the Rights of Woman* (1792), making the flippant remark to her husband "you must in future expect me to be very tenacious of my rights and privileges."³⁹

It was also through mockery that Maria Edgeworth aimed to take the fright out of the imagined spectre of the female intellectual, a spectre that had haunted England

³⁶ John Bostock to Alexander Marcet, 9 January 1812, UCL Special Collections Gilbert papers, box 4, file 1, enclosure B.

³⁷ Kelly, *Bluestocking Feminism*, 1:xiii.

³⁸ Viscountess Palmerston to Viscount Palmerston, 13 May 1792, *Portrait of a Whig Peer*, 259.

³⁹ Viscountess Palmerston to Viscount Palmerston, 13 May 1792, *Portrait of a Whig Peer*, 259.

since the French Revolution and Wollstonecraft's call for more rights for women.⁴⁰ In her moral novel *Belinda* (1801), Maria Edgeworth had the villain Harriet Freke declare that she is "champion for the Rights of Women."⁴¹ However, Kathryn Kirkpatrick has argued, with her dismissal of reading Freke was no learned woman, but instead served as a moral warning of what happened when uneducated women read and parroted radical literature.⁴² Nevertheless, Edgeworth made sure to distance herself from the taint of Wollstonecraft: in her second edition of *Letters for Literary Ladies* (1799) she assured her reader she could not be called a "champion for the rights of woman."⁴³

The activities of the Bluestockings and the distinguished patronesses complete the female side of Colley's story of the British élites' efforts to change their cultural image to that of a service élite. The first Bluestockings wanted to alter the behaviour of the upper classes to pacify criticisms from below, as signified by the choice of the humble blue-worsted stocking over gentlemen's silk stockings, but they did not aim to eliminate monarchy and aristocracy. They were also careful to distance themselves from the political stance taken by Wollstonecraft.

Many of the conclusions drawn by scholars of the early Bluestockings can be applied to the audience at the Royal Institution. Elizabeth Eger identified "three spheres of activity" used by the Bluestockings of the eighteenth century to forge female relationships: patronage, conversation and correspondence.⁴⁴ Sarah M. Zimmerman applied Eger's three spheres to later women writers: Catherine Fanshawe, Charlotte, Lady Bury, Mary Russell Mitford (1787-1855) and Anna Letitia Barbauld. All four of the women in Zimmerman's study subscribed to the Royal Institution. Zimmerman characterised Fanshawe's work as "conversation poems"

⁴⁰ Deborah Weiss, *The Female Philosopher and her Afterlives: Mary Wollstonecraft, the British Novel, and the Transformation of Feminism, 1796-1811* (London: Palgrave Macmillan, 2017), on 182.

⁴¹ Maria Edgeworth, *Belinda* in three volumes (London, 1802; 2nd ed.), volume 2, chapter XVII, "Rights of Woman."

⁴² Kathryn J. Kirkpatrick, "Introduction," in Kathryn J. Kirkpatrick (ed.) *Maria Edgeworth: Belinda* (Oxford: Oxford University Press, 1994), on xix.

⁴³ Edgeworth, *Letters for Literary Ladies*, 87.

⁴⁴ Elizabeth Eger, *Bluestockings. Women of Reason from Enlightenment to Romanticism* (Basingstoke: Palgrave Macmillan, 2010), 60.

that emerged out of the assemblies that she took as her topics.⁴⁵ Fanshawe's *Ode, by Miss Berry* (1805), a poem about the Royal Institution, was produced in such a manner. Fellow Royal Institution subscriber Lady Stanley and her female relatives also supported Fanshawe. Sarah Martha (Serena) Holroyd, wrote to her niece Lady Stanley that she had "made a pet" of the poet Catherine Fanshawe in Bath.⁴⁶ When Fanshawe was in London, Lady Stanley wrote to her sister Lady Clinton about "rummaging through" Fanshawe's portfolio.⁴⁷

Elizabeth Child's description of Elizabeth Montagu's "managerial capacity" of her town and country estates (including her collieries in Northumberland)⁴⁸ chimes with the work of Lady Hippisley and Diana Beaumont. The Bluestockings also shared with the most active distinguished patronesses a commitment to what were seen as philanthropic activities, such as establishing schools of industry for the poor.⁴⁹ In 1767, Elizabeth Montagu had set up a school of industry for girls on her northern estate,⁵⁰ as did Viscountess Palmerston later in Broadlands, although her school was distinctively founded on later Rumfordian scientific philanthropy.

Furthermore, Child's description of Montagu's desire for "a hierarchical yet reciprocal community of mutual benefit,"⁵¹ echoes the arguments of the Royal Institution's Margaret Bernard in her report of the Bath Repository. Margaret Bernard deemed the Bath Repository a "very beneficial" charity because it offered "means of acceptable employment" to the poor while also providing "useful occupation" to the rich.⁵² Indeed, the Royal Institution's *Prospectus* concluded with a promise of the prosperity that could be achieved by the "various classes of

⁴⁵ Zimmerman, "Romantic Women Writers in the Lecture Room," 385.

⁴⁶ Serena Holroyd to Maria Josepha Stanley, 30 March 1809, *The Early Married Life of Maria Josepha Stanley*, 314.

⁴⁷ Maria Josepha Stanley to Louisa Dorothea Clinton, April 1809, *The Early Married Life of Maria Josepha Stanley*, 315.

⁴⁸ Child, "Elizabeth Montagu, Bluestocking Businesswoman," 154.

⁴⁹ Kelly, *Bluestocking Feminism*, 1:ix and xlvii.

⁵⁰ Child, "Elizabeth Montagu, Bluestocking Businesswoman," 168.

⁵¹ Child, "Elizabeth Montagu, Bluestocking Businesswoman," 170.

⁵² Bernard, "Extract from an account of the Bath repository," 2:317.

society” working together – a vision of reciprocal benefits while still maintaining the existing social hierarchy.⁵³

As had the first Bluestocking Circle, men and women at the Royal Institution moralised learning to make it a suitable female pursuit. The first Bluestockings had held their learning in a “carefully controlled and elegant balance” with virtue.⁵⁴ Rejecting gambling in favour of drinking tea was part of the high moral standards the first Bluestockings set themselves. Indeed, Lady Clinton wrote she was “so very good” to attend a bluestocking party at Miss Leighton’s.⁵⁵

Going to lectures at the Royal Institution could be seen as good behaviour. When Louis Simond quizzed the husband of a young woman who “assiduously” attended Davy’s lectures in January 1810, the husband replied that he approved, and that he approved of women in general attending the lectures, as it kept them “out of harm’s way.”⁵⁶ When Davy made direct addresses to his female audience he promised that his scientific lectures would “purify the heart.”⁵⁷ A comment made in the diary of Lady Charlotte Bury is illustrative of the pressure in court circles to avoid entertainment that satisfied baser appetites in favour of more intellectual fare. In 1810, Lady Bury was appointed lady-in-waiting to Caroline, Princess of Wales – Lady Bury spoke from the world of the court. She dined with Humphry Davy and Jane Aplee a couple of times when they were courting and after they were married. Lady Bury did not have many good things to say about Humphry Davy, but she thought that Jane was “*douce société*.” She defended Lady Davy’s “perpetual bustle after knowledge,” for it was better to cultivate the “intellectual spark” rather than “pamper every appetite” and sink into a “sensual sloth.”⁵⁸

⁵³ *Prospectus of the Royal Institution*, 15.

⁵⁴ Eger, “The Bluestocking Legacy,” 128 and Eger, *Bluestockings*, 203.

⁵⁵ Louisa Dorothea Clinton to Maria Josepha Stanley, March 1800, *The Early Married Life of Maria Josepha Stanley*, 189.

⁵⁶ Simond, 24 January 1810, *Journal of a tour and residence in Great Britain*, 1:44.

⁵⁷ Davy, 3 March 1810 lecture, 38.

⁵⁸ Lady Charlotte Bury, 28 October 1811 (incorrectly dated by editor), *Diary Illustrative of the Times of George the Fourth*, 1:57. Some of the letters in this edition have been incorrectly dated: Lady Bury calls Jane “Lady Davy,” which means this meeting took place after the Davys’ marriage in 1812, although the letter is dated 1811.

In anticipation of possible objections that might be raised by *The Veils* (1815), a poem that treated a scientific theme, Eleanor Anne Porden claimed she had “moralised” her work. Porden dedicated *The Veils* to Countess Spencer, one of the Royal Institution’s distinguished patronesses. She wrote the following on her title page:

Of Earth and Air I sing, of Sea and Fire,
And various wonders that to each belong,
And while to stubborn themes I tune the lyre,
“Fierce wars and faithful loves shall moralize my song.”⁵⁹

Crammed full of the latest scientific theories, the “stubborn theme” that Porden addressed, *The Veils* was also “moralised” by being set to a tale of “fierce wars and faithful loves.” One reviewer, while praising Porden’s work, added that she should not have let her mind “waste its powers on Philosophical topics so little congenial to the Muses.”⁶⁰ This review may have taken place before publication as it was copied by hand into the back of Porden’s draft manuscript for *The Veils*. Porden had foreseen such an objection, as in her draft manuscript she argued, citing the authority of Erasmus Darwin, “Those however who think that poetry may be usefully employed in teaching, embellishing and diffusing science will be of the Author’s Opinion.”⁶¹ Like Marcet’s *Conversations on Chemistry* (1806), Porden’s poetry would aid the Royal Institution’s object of diffusing science.

However, there were double standards in the reviewer’s objection that poetry and science were a bad combination that could not be mitigated by using the example of Erasmus Darwin. The reviewer praised the poetic talents of “her masters” Humphry Davy and, oddly, William Thomas Brande (not known to scholars for his poetic interests), for proving that “imagination and invention are essential to the Experimental Philosopher.”⁶² According to the reviewer, Davy and Brande used poetry to further their science. Porden was using science to further her poetry – but the realm of science was not hers to explore, as the reviewer remarked, “We advise

⁵⁹ Porden, *The Veils*, title page.

⁶⁰ Eleanor Anne Porden, draft manuscript of *The Veils*, 110, D3311/22/1.

⁶¹ Porden, draft manuscript of *The Veils*, 3.

⁶² Porden, draft manuscript of *The Veils*, 111.

our fair Author however to pursue another path. It is *theirs* to explore the secrets of Nature and extend the Empire of Science.”⁶³ As the title page from the draft manuscript does not contain Porden’s promise that “Fierce wars and faithful loves shall moralize my song,” it may be that Porden added this to the title page in order to address some of the objections raised by her reviewer. Following the example of the Bluestockings, Porden answered criticisms that her subject was inappropriate for her sex by moralising her scientific knowledge.

The primary goal of the hostesses of the Bluestocking Circle was not to publish their own work.⁶⁴ As Kelly argued, “for any woman to publish meant in some sense to make herself public, and public women were easily associated with prostituted women.”⁶⁵ Becoming an “authoress” might compromise the carefully balanced virtue of the Bluestocking woman. The first Bluestockings published relatively little in comparison to women writers later in the eighteenth century, or if they did publish, they tended to do so anonymously. Patronising the writing of other women, particularly if it could be seen as an act of charity, was less complicated. The first Bluestockings used the weight of their influence to raise subscriptions in order to publish the work of poorer women.⁶⁶ In May 1806, the playwright and poet Joanna Baillie (1762-1851) wrote to her friend and fellow writer, Mary Berry, in order to persuade her to part with a guinea, so that the literary work of a Miss Warner of Bath might be published. Baillie presented Miss Warner to Berry as a woman who had been “advised to publish” because her household, which was composed of women only, was in financial “distress.”⁶⁷

After her father’s death, Eleanor Anne Porden mourned that she had lost both her father and her best patron, whose soul seemed wrapped up in her “literary fame.”⁶⁸ Certainly William Porden had encouraged his daughter in her ambitions as a writer,

⁶³ Porden, draft manuscript of *The Veils*, 111, my emphasis.

⁶⁴ Kelly, *Bluestocking Feminism*, 1: ix.

⁶⁵ Kelly, *Bluestocking Feminism*, 1: xlviii.

⁶⁶ Kelly, *Bluestocking Feminism*, 1: ix.

⁶⁷ Joanna Baillie to Mary Berry, 27 May 1806, in Judith Bailey Slagle (ed.) *Collected Letters of Joanna Baillie* in two volumes (Madison: Fairleigh Dickinson University Press and London: Associated University Presses, 1999) 1:160.

⁶⁸ Eleanor Anne Porden to John Franklin, 29 March 1823, D3311/8/3/5(i).

not least through allowing her to host in their home their small, informal literary society, the Attic Chest. While Porden's father encouraged her literary ambitions, her fiancé, Captain John Franklin (1786-1847) of the Royal Navy, was at one point less enamoured with her literary fame. Porden was compelled to write to Franklin to challenge what she called his "disgust at the idea of a woman's appearing in any way before the public."⁶⁹ She noted that Franklin's prejudice must be a recent one as *The Veils* had been published eight years previously in 1815 and he had, until then, voiced no objections. Although examples from the Royal Institution's audience prove that women could publish without being outcast from their peers, female writers were not straightforwardly accepted. When raising a subscription for Miss Warner of Bath, Joanna Baillie implied that if Miss Warner had the choice she would not have published, as Miss Warner was "of a shy, retired character, which makes an exertion peculiarly hard on her."⁷⁰ Miss Warner's poverty made publishing necessary – this was not the case for Porden.

In a political climate that feared the female intellectual as a revolutionary figure, there were women at the Royal Institution who continued to use the tactics of the Bluestocking Circle to promote female literary networks and support philanthropic projects. The first Bluestockings had been careful to emphasise the moral dimension of learning, and going to a chemistry lecture at the Royal Institution was likewise praised as good behaviour. While Myers stated the figure of the bluestocking as an intellectual woman outlived the first generation of Bluestockings themselves, she also implied there were none ready to take on Bluestocking activities in the early-nineteenth century, as Hester Lynch Piozzi and Mary Delany had in the late eighteenth century.⁷¹ Moreover, men as well as women at the Royal Institution were still calling themselves bluestockings into the nineteenth century, a point that is particularly important considering that when the term was first introduced in its non-pejorative form, it was applied to both sexes.

⁶⁹ Eleanor Anne Porden to John Franklin, 29 March 1823, D3311/8/3/5(i).

⁷⁰ Joanna Baillie to Mary Berry, 27 May 1806, *Collected Letters of Joanna Baillie*, 1:160.

⁷¹ Myers, *The Bluestocking Circle*, 288.

6.3 Intellectual companionship

Bluestocking Philosophy called for “intellectual companionship” between the sexes.⁷² Sympathetic fathers, husbands, brothers and male friends supported the Bluestockings of the eighteenth century.⁷³ At the Royal Institution, women’s participation in intellectual work was dependent on the support of men as well as women and moreover worked towards shared interests. Lady Margaret Bernard collaborated with her husband at the Foundling Museum and for his *Bettering Society*. Viscountess Palmerston worked with Rumford to design her soup kitchen at Romsey, a design that Rumford later copied for his kitchen at the Royal Institution. Jane Marcet stressed in her preface to *Conversations on Chemistry* that she had understood the subject through her discussions with a “friend” after the lectures and through conducting experiments herself.⁷⁴ Saba Bahar has suggested that it was the “entire scientific community” with whom Jane’s husband the chemist Alexander Marcet worked, not just Alexander Marcet himself, which was subsumed under Jane’s reference to her “friend.”⁷⁵ Indeed, Bahar argued that in writing *Conversations*, Jane Marcet was assisting the interests of a whole group of Geneva patrician intellectuals who wanted to create a new “public science” under their own terms, a public science that strengthened existing gender and social hierarchies.⁷⁶ Like the Royal Institution, this collaborative effort between Jane Marcet and the Geneva patricians aimed at social stability following the French Revolution, but did not seek radical reform.⁷⁷

When her father became so ill that he could no longer attend the Royal Institution lectures, Eleanor Anne Porden reflected that she had “lost much ... from not having any one with whom to talk them over on my return.”⁷⁸ Mary Somerville (1780-1872) who subscribed to the Royal Institution when she was married to her first

⁷² Kelly, *Bluestocking Feminism*, 1:x.

⁷³ Elizabeth Eger, “The Bluestocking Circle. Friendship, Patronage and Learning” in Elizabeth Eger and Lucy Peltz (eds.) *Brilliant Women: 18th-Century Bluestockings* (London: National Portrait Gallery, 2008): 20-55, on 31.

⁷⁴ Marcet, *Conversations on Chemistry*, 1:v-vi.

⁷⁵ Bahar, “Jane Marcet and the Limits to Public Science,” 40.

⁷⁶ Bahar, “Jane Marcet and the Limits to Public Science,” 34.

⁷⁷ Bahar, “Jane Marcet and the Limits to Public Science,” 33.

⁷⁸ Eleanor Anne Porden to John Franklin, 4 June 1823, D3311/8/3/19.

husband,⁷⁹ Samuel Greig, found her “mathematical pursuits” were at a “great disadvantage” due to lack of support from her husband.⁸⁰ Greig had no interest in science, no “sympathy” for his wife’s studies, and, so Somerville thought, “a very low opinion of the capacity of my sex.”⁸¹ While Greig did not bar his wife’s way into the Royal Institution, Somerville’s intellectual pursuits were not fully realised until she met her second, more sympathetic husband, the military surgeon William Somerville (1771-1860).

The wives of Royal Institution lecturers could also provide the kind of support found at the later British Association for the Advancement of Science meetings.⁸² After breakfast on 14 May 1804, Pleasance Smith went to the Chelsea Physic Garden with her husband, James Edward Smith, to help him collect specimens for his lecture at the Royal Institution that afternoon.⁸³ Alongside attending her husband’s lectures,⁸⁴ Pleasance Smith went along to support John Opie, husband of Amelia Opie, at his lecture too.⁸⁵ Much of Pleasance Smith’s time in London was spent with Amelia Opie, who shared Norwich and dissenting connections.⁸⁶ There was also the matter of keeping Sir Joseph Banks on side, and Pleasance and James were frequent guests of Sir Joseph and his wife Dorothea Hugessen, Lady Banks (1758-1828).⁸⁷ The social schedule on top of attending and preparing for the lectures appears to have been fairly exhausting - a few days after he gave his first ever Royal Institution lecture, James Edward Smith suffered from fatigue and feverishness and his wife had to

⁷⁹ Mrs Greig of Great Russell Street subscribed to the Royal Institution along with a Miss Greig in 1805, see *Subscribers 1805*, 117. When they were married, Somerville lived with Greig at 92 Great Russell Street, see Anonymous, “Marriages and Deaths,” *Lady’s Magazine* 38 (1807), 564.

⁸⁰ Mary Somerville, quoted in Martha Somerville (ed.) *Personal Recollections from early life to old age of Mary Somerville, with selections from her correspondence* (London, 1873), 75.

⁸¹ Mary Somerville, *Personal Recollections*, 75.

⁸² Higgitt and Withers, “Science and Sociability,” 18.

⁸³ Pleasance Smith, 14 May 1804, *Diary of Lady Pleasance Smith*, SRO 12/1.

⁸⁴ Pleasance Smith, 30 April 1804, 4, 14, 18, 21 and 28 May 1804, *Diary of Lady Pleasance Smith*, SRO 12/1.

⁸⁵ Pleasance Smith, 15 May 1804, *Diary of Lady Pleasance Smith*, SRO 12/1.

⁸⁶ Pleasance Smith, 27 April 1804, 13 and 24 May 1804, *Diary of Lady Pleasance Smith*, SRO 12/1.

⁸⁷ Pleasance Smith, 29 April 1804, 6, 7 and 13 May 1804, *Diary of Lady Pleasance Smith*, SRO 12/1.

nurse him.⁸⁸ By the end of the Season, Pleasance Smith's diary entries were concluded with the remark "very sleepy."⁸⁹

Many of the intellectual companionships described above complemented rather than challenged prescribed female domestic roles. That women should be educated in order to better teach their children was a central argument forwarded by Sydney Smith,⁹⁰ an argument picked up on and repeated in a later lecture at the Royal Institution by Humphry Davy in 1810.⁹¹ The maternal woman capable of guiding younger females through scientific studies was a familiar character, exemplified by "The Moral Zoologist; or, Natural History of Animals," published in the *Lady's Magazine* from 1800-1805,⁹² and in the figure of "Mrs B." in Jane Marcet's *Conversations on Chemistry* (1806).⁹³ However, there was also scope for women to have intellectual influence as hostesses of Bluestocking-style gatherings. Outside of the lectures the discussion on chemistry was continued in conversations at smaller, more intimate gatherings hosted by women. Porden submitted early drafts of her scientific writings to the Attic Chest society that she hosted for group discussion, including prose that summarised Davy's lecture on phosphorus at the Royal Institution in 1810 and four pieces of prose on Robert Bakewell's (1767-1843) geology lectures at the Russell Institution in 1812.⁹⁴

While many of the most famous female writers of the early-nineteenth century subscribed to the Royal Institution, these "authoresses" still faced opposition. Eleanor Anne Porden, when defending herself against what she thought was her fiancé's "almost horror" at her being a published writer, admitted "the possession of poetic talents seldom contributed to the happiness of a female."⁹⁵ In her typically

⁸⁸ Pleasance Smith, 3 May 1804, *Diary of Lady Pleasance Smith*, SRO 12/1.

⁸⁹ Pleasance Smith, 28 and 29 May 1804, *Diary of Lady Pleasance Smith*, SRO 12/1.

⁹⁰ Sydney Smith, "Female Education," in his review of *Advice to Young Ladies on the Improvement of the Mind* by Thomas Broadhurst, *Edinburgh Review* 15 (January 1810): 299-315, on 310.

⁹¹ Davy, *3 March 1810 lecture*, 38-39.

⁹² Shteir, "Green-Stocking or Blue?," 5-6.

⁹³ Bahar, "Jane Marcet and the limits to public science," 38-39.

⁹⁴ For the phosphorus prose, see Eleanor Anne Porden, 12 December 1810, Attic Chest notebooks, third season, no. 31, D311/18/8-12. Porden wrote reports of Bakewell's geology lectures under the pseudonym "Alopex" but the manuscripts are missing, see 4 March, 18 March, 1 April and 15 April 1812, Attic Chest notebooks, fourth season, no. 50-53, D3311/18/13-22.

⁹⁵ Eleanor Anne Porden to John Franklin, 29 March 1823, D3311/8/3/5(i).

chivalrous style, Porden insisted “with the modest reserve of an English Maiden” that her father had “jealously guarded” her reputation while he promoted her “literary fame.”⁹⁶ Amelia Opie warned other aspiring authoresses, that had she known “the pains and dangers that awaited me when I became a public authoress,” only poverty, as had been the case of Miss Warner in Bath, or a “strong sense of duty,” as Porden had pleaded to her fiancé,⁹⁷ would have persuaded her to face the “pains and dangers” brought on by being an authoress.⁹⁸ Jane Marcet opened *Conversations* with an apology that she, a woman, had published it.⁹⁹ Marcet, Porden and Opie were all authoresses, but all felt compelled to excuse their being so, and in Opie’s case endeavoured to persuade other women not to become authoresses in her own published work.

A woman who made her name public risked damaging her virtue. Honouring his sister’s character after her death, Henry Austen insisted that Jane was so concerned for her reputation, “that no accumulation of fame would have induced her, had she lived, to affix her name to any productions of her pen.”¹⁰⁰ It was not so much the act of writing, more the making of a public reputation, which was seen as a risk to a woman’s moral status. This coincided with the insistence that it was fine for a woman to be learned, as long as she concealed her learning (more on which later). In her *Letters for Literary Ladies*, Maria Edgeworth has the *defender* of female learning agree that women should “not have ambition to shine in public affairs” as men did.¹⁰¹ Fame and femininity were supposedly incompatible.

The first Bluestocking women had favoured patronising the writing of others over publishing their own work, because publishing could be seen to threaten a woman’s virtue. However, as Moyra Haslett has argued, satirists then attacked the Bluestockings’ support of the writings of others as being rooted in vanity, accusing

⁹⁶ Eleanor Anne Porden to John Franklin, 29 March 1823, D3311/8/3/5(i).

⁹⁷ Eleanor Anne Porden to John Franklin, 29 March 1823, D3311/8/3/5(i).

⁹⁸ Opie, *Detraction Displayed*, 241.

⁹⁹ Marcet, *Conversations on Chemistry*, 1:v.

¹⁰⁰ Henry Austen, “Biographical Notice of the Author,” in Jane Austen’s *Northanger Abbey and Persuasion* in four volumes (London, 1818).

¹⁰¹ Edgeworth, *Letters for Literary Ladies*, 81.

the Bluestockings of using authors for their own self-promotion and fame.¹⁰² Haslett numbered this type of literary hostess as among the “most consistent tropes” of bluestocking satire in the early nineteenth century.¹⁰³ In these satirical attacks, the bluestocking, with no talent of her own (although proving her talent by publishing her own work could also have invited censure), used her social status to put herself in charge of a literary coterie.¹⁰⁴ As she is motivated by vanity, argued the satirists, she only need give the appearance of being learned to achieve her aim.¹⁰⁵

In her study “Romantic women writers in the lecture room,” Sarah Zimmerman observed that audience and lecturer would meet after lectures at smaller gatherings, where the audience could more actively participate.¹⁰⁶ Indeed, a lot of the intellectual action took place outside of the Royal Institution in these smaller parties hosted by members of the audience, which Davy often attended. Lady Stanley was with Davy at a party hosted by the Churchills the night before he began his 1811 lecture course on geology.¹⁰⁷ A Miss Churchill of 60 Lower Grosvenor Street had subscribed to the Royal Institution lectures of the 1811 Season on 25 February.¹⁰⁸ The painter Benjamin Robert Haydon recollected his first high society dinner in November 1807, at which he encountered Davy.¹⁰⁹ The evening’s host was Margaret, Lady Beaumont (1756-1829), who had subscribed to the Royal Institution for the 1805 Season,¹¹⁰ wife of the art patron and founding member of the British Institution, Sir George Howland Beaumont (1753-1827). According to Haydon, Davy attached himself to Lady Beaumont.

¹⁰² Haslett, “Bluestocking Feminism revisited,” 440.

¹⁰³ Haslett, “Bluestocking Feminism revisited,” 440.

¹⁰⁴ Haslett, “Bluestocking Feminism revisited,” 439.

¹⁰⁵ Haslett, “Bluestocking Feminism revisited,” 440.

¹⁰⁶ Zimmerman, “Romantic women writers in the lecture room,” 382.

¹⁰⁷ Maria Josepha Stanley to Mrs E. Stanley, 26 April 1811, *The Early Married Life of Maria Josepha Stanley*, 333. As previously noted, the editor of the collection has wrongly dated many of Stanley’s 1811 letters as 1812. Contrary to the date of this letter given by the editor, Davy did not give lectures on geology in 1812.

¹⁰⁸ RI MM, 25 February 1811, 5:192.

¹⁰⁹ Benjamin Robert Haydon, “Autobiography of Benjamin Robert Haydon” in Tom Taylor (ed.) *Life of Benjamin Robert Haydon, Historical Painter, from His Autobiography and Journals*, in three volumes (London, 1853), 1:53.

¹¹⁰ *Subscribers 1805*, 111.

Sarah Zimmerman used Lord Byron's satirical poem *The Blues: A Literary Eclogue* (1821) to show the perceived threat of Bluestocking influence over male literary integrity.¹¹¹ *The Blues* is split in half by the two scenes of action – first outside the door of a lecture theatre, and later in a room in the house of “Lady Bluebottle.” Lady Bluebottle is hosting a Bluestocking party, and “Scamp” the lecturer has been seated next to his hostess at her request. Zimmerman argued that, for Robert Southey and Lord Byron, these private social gatherings were as big a cause for alarm as the lectures, as women were “eager” participants in these discussions and brought literary culture under female influence.¹¹²

At a party hosted by Lady Davy when Madame de Staël came to London in 1813, Madame de Staël threw her fellow dinner guest Lord Byron off-guard. Madame de Staël had interrupted men when they were talking. She had “lectured” to them and had “preached England’s politics to the first of our English Whig politicians.”¹¹³ Lord Byron whined that de Staël “made very long speeches to those who had been accustomed to hear such only in the two Houses.”¹¹⁴ The continental Madame de Staël did not conform to fashionable London society’s conventional restrictions on the female intellect – namely, it was all very well for a woman to be learned, but she should not be too free with her opinions.

Lady Davy was praised for her bluestocking gatherings by Frances Anne Edgeworth (née Beaufort, 1769-1867), who remarked that Lady Davy was a kind and attentive host and they “were bluer than blue at her parties.”¹¹⁵ Frances Anne Edgeworth had visited London with her husband and stepdaughter, Maria Edgeworth, and was very disappointed to leave before Madame de Staël arrived. Hosting Madame de Staël, perhaps the best-known European intellectual of the day, further bolstered Lady Davy’s status as a leading literary hostess. Lady Davy was sure to let it be known to Sarah Ponsonby (one half of the legendary Ladies of Llangollen who were known for

¹¹¹ Zimmerman, *Romantic Women Writers in the Lecture Room*, 383.

¹¹² Zimmerman, *Romantic Women Writers in the Lecture Room*, 383.

¹¹³ Lord Byron, “Some Recollections of my acquaintance with Madame de Stael,” published in *Murray’s Magazine* 1 (January 1887): 4-6, on 5.

¹¹⁴ Lord Byron, “Some Recollections of my acquaintance with Madame de Stael,” 5.

¹¹⁵ Frances Anne Edgeworth to William and Emma Beaufort, 16 July 1813, The Edgeworth Papers from the National Library of Ireland, MS 10166/7, letter 941.

their intellectual abilities) that she would be hosting Madame de Staël.¹¹⁶ Maria Edgeworth appears to have been irked by Lady Davy's boasts, observing she "is in high glory at this moment, introducing Madame de Stael everywhere; enjoying the triumph and parting the gale."¹¹⁷ In a letter to Sophy Ruxton, Edgeworth complained that Lady Davy was trying too hard to impress others, her face pulled in "contrary directions" between "real and affected feelings and anxieties."¹¹⁸

Before they were married, Lady Davy's husband-to-be had declared to her that Maria Edgeworth was his idea of a "perfect" female intellectual. Humphry Davy had met Maria in Bristol through her sister Anna Beddoes (née Edgeworth, 1773-1824), wife of his employer Thomas Beddoes. To Jane, Davy prescribed the female intellect ought to be pleasing rather than brilliant. Humphry Davy described Maria Edgeworth as "unassuming, dwelling in her conversation on topics of general interest, and elucidating her opinions by pleasing rather than brilliant imagery."¹¹⁹ Madame de Staël did not confine herself to topics of general interest as Davy advised. His model female intellectual was confined to general topics of conversation, and her aim was to be pleasing rather than compete with male brilliancy. To dwell on topics of general interest might guard against the then popular accusation of pedantry – of showing-off knowledge in company.

Lady Stanley described a tense atmosphere between Jane and Humphry Davy at a dinner hosted by her father at his country estate, Sheffield Park, in Sussex during June 1817, in a letter to her sister-in-law Catherine Stanley (née Leycester, 1792-1862). Jane Davy had joined the debate on the desire "all Men have to seek truth," whereas Humphry Davy "would not enter into the question at all, but grumbled out a sulky dissention occasionally on whatever was advanced."¹²⁰ Jane Davy then

¹¹⁶ Jane Davy to Sarah Ponsonby, 14 May 1813, previously published in Eva Mary Bell, *The Hamwood Papers of the Ladies of Langollen* (London: Macmillan and Co., 1930) 348-49, Davy Letters Project.

¹¹⁷ Maria Edgeworth to Sophy Ruxton, 9 August 1813, The Edgeworth Papers from the National Library of Ireland, MS 10166/7, letter 951.

¹¹⁸ Maria Edgeworth to Sophy Ruxton, 9 August 1813, The Edgeworth Papers from the National Library of Ireland, MS 10166/7, letter 951.

¹¹⁹ Humphry Davy to Jane Apreece, 1 November 1811, archives of the Royal Institution of Great Britain, RI GB HD/25/5a, i-ii.

¹²⁰ Maria Josepha Stanley to Catherine Stanley, 24 June 1817, *The Early Married Life of Maria Josepha Stanley*, 404-5.

sparked more debate, declaring “she liked to see remarkable people” in recollection of her meeting in Bath with the writer and second generation Bluestocking Hester Lynch Piozzi, to which Humphry Davy replied he “had no curiosity.”¹²¹ Jane Davy’s preference for remarkable people is reflected in her dislike for Jane Austen’s *Pride and Prejudice* (1813): although she commended Austen’s description of “vulgar minds and manners” for being realistic, it did not contain enough “dignified and refined characters” to merit her attention.¹²²

Lady Stanley records that Humphry Davy “somehow got very near abuse of clever women,” making a “remarkable distinction” between “clever women” and “sensible women.”¹²³ Yet in January 1799, Davy had admired the learned Anna Beddoes (1773-1824), the wife of his employee and Maria Edgeworth’s sister, praising her as the “cleverest” woman he knew.¹²⁴ Turning away from the radical politics of his youth, Davy’s feelings on the matter of the female intellect had become more conservative as his female audience at the Royal Institution had brought him ridicule. In his lecture at the Royal Institution on 3 March 1810, Davy had used the “domestic imperative”¹²⁵ to argue that women should be educated in science in order that they might better instruct their sons (he made no mention of daughters).¹²⁶ Lady Stanley had to hold herself back from telling Humphry Davy he should not expect all women to be satisfied with a domestic life, and wanted to give the fictional heroine Corinne as an example of “the kind of woman who could not be happy in the domestic circle.”¹²⁷

It is significant that Lady Stanley thought of Corinne as an example of a woman who defied the domestic imperative. Corinne was the heroine of de Staël’s novel

¹²¹ Maria Josepha Stanley to Catherine Stanley, 24 June 1817, *The Early Married Life of Maria Josepha Stanley*, 405.

¹²² Jane Davy to Sarah Ponsonby, 14 May 1813, *The Hamwood Papers of the Ladies of Langollen*, 348-349.

¹²³ Maria Josepha Stanley to Catherine Stanley, 24 June 1817, *The Early Married Life of Maria Josepha Stanley*, 405.

¹²⁴ June Z. Fullmer, *Young Humphry Davy. The Makings of an Experimental Chemist* (Philadelphia: American Philosophical Society, 2000), on 107.

¹²⁵ Schiebinger, *The Mind Has No Sex?*, 216.

¹²⁶ Davy, *3 March 1810 lecture*, 38-39.

¹²⁷ Maria Josepha Stanley to Catherine Stanley, 24 June 1817, *The Early Married Life of Maria Josepha Stanley*, 405.

Corinne, or Italy (1807), a heroine who challenged the conventional submissive role of women in the period. As Lucy Peltz has shown, while contemporaries saw similarities between the heroine and the author, the painter Elisabeth Vigée-LeBrun explicitly synthesised the two in her portrait *Madame de Staël as Corinne* (1807-8).¹²⁸ London's Bluestockings were full of praise for Madame de Staël: "Eloquence is a great word, but not too big for her" said the poet Catherine Fanshawe.¹²⁹ According to a letter that Maria Edgeworth saw, Jane Davy wrote that Madame de Staël's "genius and eloquence surpassed in no common degree."¹³⁰ Madame de Staël was also a famous enemy of Napoleon Bonaparte. Napoleon had denounced her novel *Corinne* as unpatriotic, as it left untouched in Italy the artworks that had been taken by his army.¹³¹

¹²⁸ Lucy Peltz, "Living Muses. Constructing and Celebrating the Professional Woman in Literature and the Arts" in Elizabeth Eger and Lucy Peltz (eds.) *Brilliant Women: 18th-Century Bluestockings* (London: National Portrait Gallery, 2008): 56-93, on 87.

¹²⁹ Catherine Fanshawe, "Extract from a letter by Miss Catherine M. Fanshawe," *Murray's Magazine* 1 (January 1887), on 6.

¹³⁰ Maria Edgeworth to Sophy Ruxton, 9 August 1813, The Edgeworth Papers from the National Library of Ireland, MS 10166/7, letter 951.

¹³¹ Angelica Goodden, *Madame de Staël: The Dangerous Exile* (Oxford: Oxford University Press, 2008), 155.



Figure 9. Portrait of Madame de Staël as Corinne (1807-8), Elisabeth Vigée-LeBrun

In her history of the Bluestockings, Amelia Opie maintained the first Bluestockings had dismantled the “awful ugly” practice of segregating the sexes in English drawing rooms, and that in London meetings “for the purposes of conversation” this segregation had never been resumed.¹³² In their homes women could sometimes have a degree of control as hosts: Zimmerman used the example of Lady Davy, who, as host, ordered that coffee be served in the dining room to avoid the segregation of the sexes after dinner. Lady Davy was thus able to “fan the flames” of the heated

¹³² Opie, *Detraction Displayed*, 253.

debate between two of her guests, Madame de Staël and Lord Byron.¹³³ However, segregation of the sexes at private parties did at times exclude women from intellectual conversation in this period. At a dinner hosted by Lady Stanley in May 1809, Humphry Davy, Sir James Hall (1761-1832) and John Playfair (1748-1819) were invited “with the intention of a good set-to at the metallic world.”¹³⁴ However, the metallic world was held at bay and the conversation kept “general” until after the women had left the table. This was much to the dismay of Lady Stanley’s father, John Baker Holroyd, first Earl of Sheffield (1735-1821), who was well acquainted with Davy, as Holroyd was President of the Board of Agriculture (where Davy also gave lectures) from 1803 until 1806. Holroyd was not able “to get a word in” yet as a man could not excuse himself from the metallic conversation, much to the amusement of Lady Stanley, who described her father as the “most unphilosophical of all peers.”¹³⁵

Although as host Lady Davy may have had a certain degree of control over Madame de Staël’s visit, she remained constrained because of her sex, especially, she thought, in comparison to her Parisian counterparts. In her letter to Sarah Ponsonby, Lady Davy fretted over what the Parisian salon-raised Madame de Staël would think of the intellectual fare that the London Bluestockings could offer. It was not just the cost of living in London in comparison to Paris that worried Lady Davy – it was whether conversation in mixed company would be confined to “trifles,” not allowing her guest full exercise of her intellect when Madame de Staël was accustomed to the “full enjoyment of society.”¹³⁶ Lady Davy imagined Madame de Staël in Paris fully participating in a society where conversation in mixed sex company was “open and constant.”¹³⁷ When Madame de Staël came to Britain, she

¹³³ Zimmerman, *Romantic Women Writers in the Lecture Room*, 383.

¹³⁴ Maria Josepha Stanley to Louisa Dorothea Clinton, 22 May 1809, *The Early Married Life of Maria Josepha Stanley*, 317.

¹³⁵ Maria Josepha Stanley to Louisa Dorothea Clinton, 22 May 1809, *The Early Married Life of Maria Josepha Stanley*, 317. That a man so “unphilosophical” should hold the office of president somewhat undermines Berman’s thesis that the Board was under the control of a group of improving landlords committed to an “ideology of science.” See Berman, *Scientific Change and Social Organization*, 40.

¹³⁶ Jane Davy to Sarah Ponsonby, 14 May 1813, *The Hamwood Papers of the Ladies of Langollen*, 348-349.

¹³⁷ Jane Davy to Sarah Ponsonby, 14 May 1813, *The Hamwood Papers of the Ladies of Langollen*, 348-349.

did indeed find that English custom segregated women from conversation more than she was used to on the continent.¹³⁸ Lady Davy's fears were quite justified.

6.4 Woman of display

Women who voiced their opinions on intellectual topics as Madame de Staël had were prone to being labelled as pedants. Amelia Opie suspected that a “*woman of display*,” who volunteered her knowledge to others at all times, was being called blue when she might more accurately be called a pedant.¹³⁹ In the early-nineteenth century, women were more likely to be accused of this ostentatious show of knowledge, of pedantry, than men. Sydney Smith had pointed to this unfairness when he called upon his readers to admit there was as much pedantry in men as in women.¹⁴⁰ Judging by one of Samuel Johnson's (1709-1784) pieces in *The Rambler*, written before the Bluestockings (whom he would later join) in 1751, the insult pedant was then often levelled at male scholars – Johnson made no mention of female pedants.¹⁴¹ However, by 1819 William Thomas Brande was lecturing to the London Institution that pedantry was “never so disagreeable as in female attire.”¹⁴² Robert Southey, in an attempt to undermine fashionable female audiences, complained that the lectures of the Royal Institution were a source of pedantry, accusing the women of using what they had learnt at the lectures to show-off “as topics for the next conversation party.”¹⁴³

Sylvia Harcstark Myers used Thomas Moore's comic opera, *M.P., or, The Blue-Stocking* (1811), to show that a centuries old animosity towards the female intellectual had been reincarnated in the figure of Moore's bluestocking, “Lady Bab Blue.”¹⁴⁴ What Myers left uncommented upon, however, was how much Lady Bab Blue's pretence at being learned in chemistry – far more so than any other discipline – had become bound up in the identity of Moore's archetypal bluestocking. Moreover, Lady Bab Blue had a servant named “Davy.” The portrait

¹³⁸ Goodden, *Madame de Staël*, 159-161.

¹³⁹ Opie, *Detraction Displayed*, 263.

¹⁴⁰ Smith, “Female Education,” 177.

¹⁴¹ Samuel Johnson, *The Rambler*, 173, 12 November 1751.

¹⁴² Brande, *An Introductory Discourse*, 38.

¹⁴³ Southey, *Letters From England*, 3:315.

¹⁴⁴ Myers, *The Bluestocking Circle*, 294.

Moore paints of Davy is highly unflattering – he is an idiotic country bumpkin, demeaned by his mistress and her “larning” (learning). Moyra Haslett attributed Moore’s ridicule of Lady Bab as an “amateur scientist” to early eighteenth-century satire against the “learned lady,” but not to anything contemporaneous.¹⁴⁵ I argue that the chemical turn of bluestocking satire in Moore’s opera was in fact caused by a contemporary phenomenon – the fame of Davy and the Royal Institution’s female audience. The opera was premiered at London’s Lyceum Theatre on 9 September 1811, the year that also marked a peak in Davy’s publicity: no fewer than 46 reports mentioning Davy’s lectures were printed in the newspaper press that year, predominantly in the *Caledonian Mercury* and the *Observer*. A Thomas Moore had subscribed to the Royal Institution in the season of 1808, giving “new hammams” (Turkish baths) as a fake address, a joke that suggests it may well have been the very same Thomas Moore who wrote the comic opera.¹⁴⁶ Whether through reading press reports or attending the lectures, Moore was certainly up to date with what Davy was teaching at the Royal Institution.

Lady Bab Blue is a genteel lady who calls herself a chemist,¹⁴⁷ whose eyes have even “suffered in the cause of science.”¹⁴⁸ She is in frequent correspondence with the famed Irish chemist Professor *O’Jargon* (his surname indicating pedantry),¹⁴⁹ as Lady Hippisley had her correspondence network of male chemists and geologists. A true pedant, Lady Bab Blue never misses an opportunity to squeeze chemical theory and chemical terms into every conversation. She intends to write a chemical poem, called the *Loves of Ammonia*, which personifies the alkali ammonia.¹⁵⁰ The title of her work apes that of Erasmus Darwin’s *The Loves of the Plants* (1789), and is ridiculed as an attempt to “enlist poetry under the banners of Science.”¹⁵¹ This shows the potential reception Eleanor Anne Porden’s *The Veils*, which personified Davy’s alkalis, may have met with in some quarters when published in 1815.

¹⁴⁵ Haslett, “Bluestocking Feminism Revisited,” 438.

¹⁴⁶ RI MM, 30 May 1808, 4:353.

¹⁴⁷ Thomas Moore, *M.P., or, The Blue-Stocking, a comic opera, in three acts* (London, 1811), 30.

¹⁴⁸ Moore, *M.P., or, The Blue-Stocking*, 4.

¹⁴⁹ Possibly modelled on the Irish chemist Richard Kirwan, 1733-1812.

¹⁵⁰ Moore, *M.P., or, The Blue-Stocking*, 64.

¹⁵¹ Moore, *M.P., or, The Blue-Stocking*, 64.

Moore's comic opera takes an amusing twist when the bookseller, Leatherhead, is led to believe by mistake that Lady Bab Blue wants him to marry her niece. For her part, Lady Bab Blue thinks that Leatherhead wants to publish her book, *Loves of Ammonia*. When asked by Lady Bab if he is aware "of the *discoveries* that have lately been made respecting *Ammonia*,"¹⁵² Leatherhead thinks "Ammonia" is a nickname for Lady Bab's niece:

Leatherhead: But, with submission, my Lady, what may the discoveries be that have lately been made about Miss Ammonia?

Lady Bab Blue: *Miss Ammonia!* how well he keeps up the personification! (*aside*) – It has been found that a lively, *electric spark*-

Leath: A spark! ay- I guessed how it was (*aside*).

Lady Bab: Has produced a very interesting effect upon Ammonia.

Leath: I don't doubt it (*aside*) – And pray, my Lady, where did this lively spark come from?

Lady Bab: From *the battery*, Sir.

Leath: From *the battery!* ay – some young Artillery Officer, I suppose¹⁵³

Chemical knowledge in the hands of Lady Bab Blue could only beget foolish behaviour. The above comic exchange also shows Davy's chemical discoveries had indeed become a topic for London's conversation parties. In *Elements of Chemical Philosophy* (1812), a text based on Davy's lecture material, Davy speculated that as he could decompose potash and soda with the battery to make potassium and sodium, ammonia might in the same way be shown to contain an alkali metal.¹⁵⁴ The "interesting effect" produced by the battery upon ammonia had been demonstrated in a lecture at the Royal Institution in May 1811, a few months before Moore's opera premiered. Replicating an experiment by Jöns Jacob Berzelius, Davy used the voltaic battery to make an amalgam of mercury and

¹⁵² Moore, *M.P., or, The Blue-Stocking*, 83.

¹⁵³ Moore, *M.P., or, The Blue-Stocking*, 84.

¹⁵⁴ Davy, *Elements of Chemical Philosophy*, 473-477 and 481-482.

ammonia, thereby, Davy argued, proving the metallic nature of ammonia.¹⁵⁵ Producing sparks from the voltaic battery was one of Davy's favoured demonstrations and he even darkened the lecture theatre for greater effect.¹⁵⁶

One possible motivation for the published attacks on the female audience of the Royal Institution, attacks of men like Robert Southey, Henry Brougham and Thomas Moore, could be that they wanted to check the power of these Bluestockings. In *Don Juan* (1819-1824), Lord Byron expressed his anxiety that Bluestockings could make or break the reputation of poets.¹⁵⁷ Gary Kelly has pointed out that it was those "who feared or felt excluded from Bluestocking Society" that began to apply the term solely to women.¹⁵⁸ At the Royal Institution, the husbands of Bluestockings, "insiders" like Sir Gilbert Eliot and Sir John Thomas Stanley who appear to have enjoyed healthy relationships with their wives, did not use the term blue as an insult and indeed applied it to themselves.

In Moore's comic opera, one of the more sensible characters, Mr Hartington, protests that he does not want to stop women from learning – he just wants them to learn also to "conceal" their learning.¹⁵⁹ Hartington then implies that a woman who does not learn to conceal her learning is a woman of suspect virtue, "I could even bear a little peep at the blue-stockings, but save me from the woman who shows them up to her knees!"¹⁶⁰ The first Bluestockings rebelled against contemporary court culture with its sexual intrigue, and enforced strict standards when it came to female sexual conduct.¹⁶¹ In spite of these strict codes, outsiders nevertheless accused the meetings of being covers for sexual liaisons.¹⁶²

There was an uneasiness in London about a woman who did not conceal her knowledge, whether through publication or by talking too much about politics and

¹⁵⁵ Anonymous, "Royal Institution," *Observer*, 5 May 1811, 4c and "Dr. Davy's Lectures," *Royal Cornwall Gazette*, 11 May 1811, 4e.

¹⁵⁶ James Dinwiddie, 13 May 1809, notebook E6, and 16 February 1811, notebook E11, DUA MS/2/726/16 and 17.

¹⁵⁷ Myers, *The Bluestocking Circle*, 292 and Haslett, "Bluestocking Feminism Revisited," 442.

¹⁵⁸ Kelly, *Bluestocking Feminism*, 1:x.

¹⁵⁹ Moore, *M.P., or, The Blue-Stocking*, 10.

¹⁶⁰ Moore, *M.P., or, The Blue-Stocking*, 10.

¹⁶¹ Pohl and Schellenberg, *Reconsidering the Bluestockings*, 7.

¹⁶² Kelly, *Bluestocking Feminism*, 1:x.

science, as can be seen in the reaction to the behaviour of Madame de Staël at Lady Davy's party and in the ridicule of Lady Bab Blue. In his essay on female education, based on a lecture he had given at the Royal Institution, Sydney Smith had stressed that cultivating knowledge was "a very distinct thing" from publishing knowledge.¹⁶³ Smith cautioned his audience "the friends of female education" desired that the greatest use of a woman's knowledge should be for "her private happiness," not the fame she might enjoy from "making it public."¹⁶⁴ When she cautioned aspiring "women of talent" against venturing "into the arena of public authorship," Amelia Opie used her own personal experience of the pains and dangers of publishing as a moral lesson.¹⁶⁵ In keeping with her radical background, Opie also quoted the French revolutionary Manon Roland (Madame Roland, 1754-1793), who had been guillotined in the terror, to remind the aspiring authoress, "women are not bound to communicate what they acquire; what could they say that others do not know better than they?"¹⁶⁶ Women were more likely to find happiness "under a veil" than by "showing themselves."¹⁶⁷

When bereft of their veils, Eleanor Anne Porden's heroines in her chivalrous chemistry epic *The Veils* were indeed miserable. However, Porden also retaliated with a defiant response to her fiancé, Captain John Franklin, to the prescription that women should keep their learning concealed:

You say that all desire of literary fame is vanity, simply because your own ambition lies in another channel [...] That fame in the way of your profession is not indifferent to you I will venture to pronounce. For instance, were you in command of a well appointed fleet, you would certainly wish to encounter the enemy, to obtain a signal victory, & place your own name with those of Nelson & Duncan & Howe & Rodney &c. &c. &c. Yet your own duty would be as conscientiously performed if the first ball that was fired carried your head with it, and your country's interests as much promoted if your successor achieved the victory.¹⁶⁸

¹⁶³ Smith, "Female Education," 180.

¹⁶⁴ Smith, "Female Education," 180.

¹⁶⁵ Opie, *Detraction Displayed*, 242.

¹⁶⁶ Opie, *Detraction Displayed*, 242.

¹⁶⁷ Opie, *Detraction Displayed*, 242.

¹⁶⁸ Eleanor Anne Porden to John Franklin, 29 March 1823, D3311/8/3/5(i).

In an age that worshipped the gallant heroes who featured in her chivalrous epics, Porden challenged her fiancé, the naval officer, renowned arctic explorer and later governor of Van Diemen's Land, to deny any desire for fame as he wished her to. Franklin had seen naval action in the war with Napoleonic France, including as signal midshipman on *HMS Bellerophon* at the battle of Trafalgar.¹⁶⁹ Franklin's late-nineteenth century biographer lauded him for "gallantry which even the hero of Trafalgar could not have surpassed."¹⁷⁰

A few months before Porden and Franklin's argument, Porden's name, listed as part of a "bright constellation" of female talent, had been called out at a lecture by James Jennings (1772-1833) on 1 November 1822 at the Surrey Institution, which he repeated on 20 December 1822 at the Russell Institution.¹⁷¹ Along with Porden, Jennings named Elizabeth Carter the Bluestocking, Maria Edgeworth, and also several radical female writers, including Amelia Opie, Anna Letitia Barbauld and Mary Wollstonecraft – Jennings himself had moved in radical circles in his youth.¹⁷² Being numbered among radicals would not have aided Porden in her dispute with her fiancé. Jennings was using Porden's name to argue that part of the utility of literary institutions, such as the Surrey and Russell Institutions that he was lecturing in, was to "diffuse knowledge" among women so that they could continue to "delight and instruct."¹⁷³

However, women walked a fine line between being a ruler of opinion, essential to the project of diffusing science, and being a woman of display. Jane Marcet and Maria Edgeworth appear to have been particularly successful at negotiating this difference, Lady Davy less so. Saba Bahar has shown how Jane Marcet's *Conversations* (1806) pleased the Geneva patricians as its style of communication moved away from the "gallantry of Parisian salons,"¹⁷⁴ making the crucial point that

¹⁶⁹ A. H. Beesly, *Sir John Franklin* (London, 1881), 18-20.

¹⁷⁰ Beesly, *Sir John Franklin*, 19.

¹⁷¹ James Jennings, *A Lecture on the History and Utility of Literary Institutions, delivered at the Surrey Institution, London, on Friday, November 1st and again at the Russell Institution on Thursday, December 20th, 1822* (London, 1823), on 106.

¹⁷² Jennings, *A Lecture on the History and Utility of Literary Institutions*, 106-107.

¹⁷³ Jennings, *A Lecture on the History and Utility of Literary Institutions*, 105-106.

¹⁷⁴ Bahar, "Jane Marcet and the limits to public science, 39.

with *Conversations* it was “not so much what is transmitted as the art of doing so.”¹⁷⁵ However, although Bahar used *Conversations*’ warnings about steering clear of “minutiae” and “petty details” to illustrate Marcet’s efforts to ward off women from becoming practical chemists, she did not make the additional link between these warnings and the accusations of pedantry then rife in London’s fashionable circles.¹⁷⁶ Bahar argued that Maria Edgeworth, like Marcet, had used her writings to show that “the woman who pursues chemistry is not a woman of display,” but a “domestic and useful” woman.¹⁷⁷ In London’s fashionable circles in the early-nineteenth century, it might have even been a safer option to publish than become a literary hostess, a reversal of the dilemma of the first Bluestockings. Lady Davy, the literary hostess who sought the company of remarkable people, would have been more vulnerable to accusations of vanity, although Lady Bury at least defended Lady Davy’s “perpetual bustle after knowledge.” Amelia Opie too declared she had more respect for a woman who displayed what little knowledge she had, than for a woman who kept her learning hidden from fear of ridicule.¹⁷⁸

6.5 Conclusion

In 1803 Sir Gilbert Elliot had called himself “blue” in a compliment to his wife, Lady Anna Maria, but by 1826 Sir Walter Scott was compelled to come to his “facetious and lively” friend’s defence when Lady Anna Maria was abused by “some silly women and silly men” for being a bluestocking.¹⁷⁹ Scott rebuffed, “If to have a good sense and good-humour, mixed with a strong power of observing, and an equally strong one of expressing – if of this the result must be *blue*, she shall be as blue as they will.”¹⁸⁰ The term bluestocking had become an insult, but my study of women at the Royal Institution suggests the Bluestockings were active for far longer into the nineteenth century than has been suggested. Indeed, both men and women who attended the Royal Institution described themselves as bluestockings, in

¹⁷⁵ Bahar, “Jane Marcet and the limits to public science,” 35.

¹⁷⁶ Bahar, “Jane Marcet and the limits to public science,” 39-40.

¹⁷⁷ Bahar, “Jane Marcet and the limits to public science,” 38.

¹⁷⁸ Opie, *Detraction Displayed*, 265.

¹⁷⁹ Walter Scott, 10 August 1826, in John Gibson Lockhart (ed.) *Memoirs of the Life of Sir Walter Scott, Bart.* (Edinburgh, 1845), 633.

¹⁸⁰ Walter Scott, 10 August 1826, *Memoirs of the Life of Sir Walter Scott*, 633.

continuity with its original use in the 1750s. In common with the earlier Bluestockings, women at the Royal Institution instigated philanthropic projects, supported female literary networks, and enjoyed fruitful intellectual companionship with men. The intimate gatherings and conversation that often followed the lectures, like the bluestocking salons of the eighteenth century, gave women the opportunity to partake in and, to an extent, direct intellectual discussions.

Bluestocking hostesses, like the distinguished patronesses at the Royal Institution, were rulers of opinion. If they took a strong interest in chemistry, others would follow suit. They could make the reputations of men like Davy. However, as Diana Donald has argued, there was resistance to any sort of female influence in society.¹⁸¹ For Linda Colley, the proliferation of prescriptive literature that confined women to the domestic sphere was symptomatic of an increase in women venturing into the public sphere.¹⁸² Colley pointed in particular to the number of women seen outside the household in the cities: at theatres, concert halls and fashionable shops.¹⁸³ Indeed, the sheer number of women going to chemistry lectures at the Royal Institution was a cause for alarm.

Kelly has argued that it was the very prominence of the women in the first Bluestocking Circle, who received more publicity than their male companions, which paved the way for the pejorative meaning of the term bluestocking.¹⁸⁴ Eger attributed the backlash against the Bluestockings in part to being victims of their own success, with the scale of prominent female intellectuals causing an “antagonistic reaction,” notably from male Romantics.¹⁸⁵ Moreover, themselves victims of ridicule during the “Reign of Alarm” that followed the French Revolution in England, the Romantics sought to distance themselves from their earlier radical politics, and an easy way to do this was to mock female learning in public. Southey is the paradigm example, described as “about as radical as one could be” in the

¹⁸¹ Donald, *The Age of Caricature*, 80.

¹⁸² Colley, *Britons*, 250.

¹⁸³ Colley, *Britons*, 241.

¹⁸⁴ Kelly, *Bluestocking Feminism*, 1:x.

¹⁸⁵ Eger, *Bluestockings*, 205.

1790s, but later leading the conservative outcry against his friend's Anna Letitia Barbauld's *Eighteen Hundred and Eleven* (1812).¹⁸⁶

The popularity of Davy's lectures at the Royal Institution among fashionable women, and the publicity afforded to both lecturer and audience, meant that chemistry became bound up in the figure of the bluestocking in the early-nineteenth century. From the mid-eighteenth century into the late twentieth century, bluestocking was "a name around which associations with and feelings about intellectual women could cluster."¹⁸⁷ For Francis Horner, these feelings were "ambiguous."¹⁸⁸ On the one hand, Horner accused the audience of not behaving as they ought, remarking that he had observed "much actual folly" without giving specific examples.¹⁸⁹ Yet on the other hand, Horner called the lectures a "trophy to the sciences," where "one great advance is made towards the association of female with masculine minds in the pursuit of useful knowledge."¹⁹⁰ Like others, Horner did not contest that women should learn chemistry, but he scrutinised female behaviour at the chemical lectures. Unlike Southey, Horner was pleased that chemistry was being "included within the range of polished conversation," another reference to chemistry being talked about at London's fashionable parties.¹⁹¹ The distinguished patronesses and the fashionable female audience they attracted were indispensable in the Royal Institution's aim to diffuse science. However, while a desire for learning in a woman was seen as a good thing, provided it did not interfere with her domestic duties, the pressure for women to conceal their learning to avoid accusations of pedantry checked female influence on intellectual culture.

¹⁸⁶ Kenneth R. Johnston, *Unusual Suspects: Pitt's Reign of Alarm and the Lost Generation of the 1790s* (Oxford: Oxford University Press, 2013), 286.

¹⁸⁷ Myers, *The Bluestocking Circle*, 303.

¹⁸⁸ Horner, 31 March 1802, *Memoirs of Francis Horner*, 109.

¹⁸⁹ Horner, 31 March 1802, *Memoirs of Francis Horner*, 109.

¹⁹⁰ Horner, 31 March 1802, *Memoirs of Francis Horner*, 109.

¹⁹¹ Horner, 31 March 1802, *Memoirs of Francis Horner*, 109.

Chapter 7 Conclusion

In infancy his mind ran upon Romance. He had probably read or heard some tales of Chivalry. His ardent wish was to issue forth armed cap-à-pie, and to clear the world of giants and monsters.¹

7.1 Review of argument

Six months after Davy's death, his friend and early mentor, Davies Gilbert, addressed the Royal Society of London as President, memorialising Davy to the learned society as a fantasy figure, a knight from a chivalric tale. Jan Golinski has remarked that Davy's tenure at the Royal Institution made chemistry take on "an entirely new form as a public science," and that it was the "large and diverse audience" there that enabled chemistry's transformation, but the mechanism behind that transformation Golinski did not make explicit.² My original contribution to the field has been to make that mechanism explicit. I have argued that Davy and his female audience at the Royal Institution brought chemistry into the service of aristocracy and away from the radical politics it was associated with in the late-eighteenth century. They made chemistry chivalrous.

Edmund Burke had used chemistry to describe the turmoil of the French Revolution, and high profile chemists like Joseph Priestley and Thomas Beddoes were renowned for their radical politics. Although Davy began his chemical career in the radical circles of Bristol, upon his move to London he moulded himself upon the ideal of his upper class female audience. At the Royal Institution, a chivalrous chemistry was made: a chemistry that opposed the French Revolution, was compatible with Burke, and strengthened the existing social hierarchy. Burke had used chemistry to describe social upheaval. In *The Veils* (1815), Eleanor Anne Porden used chemical reactions to determine the victors in chivalric battles that promoted the class

¹ Davies Gilbert, President's address to the Royal Society of London, 30 November 1829, RSL MS JB/45, page 543. With thanks to Frank A. J. L. James for providing this reference.

² Golinski, *Science as Public Culture*, 188.

hierarchy. In the cult of heroism of the Napoleonic era, Davy achieved fame as, to use Adeline Johns-Putra's term, a "knight of science."³

In the Napoleonic Wars, female patriotism found an unprecedented level of public expression. This was an era in which Sir Walter Scott's chivalrous tales were the most popular, where women collected and wrote heroic poetry, and where military leaders like the Duke of Wellington were immortalised in statues erected by entirely female subscriptions. As his friend Coleridge commented, Davy was "determined to mould himself upon the age in order to make the age mould itself upon him."⁴ Reports of Davy's lectures in the newspaper press and the lecture notes of James Dinwiddie evidence Davy turning the Royal Institution lecture theatre into a spectacular battlefield: plunging the lecture theatre into darkness for heightened effect, emphasising the inherent dangers of chemistry and talking of sacrifice. Davy went as far as suggesting that his most famous discoveries, potassium and sodium, could be used as weapons of war. Maria Edgeworth made a direct comparison between the way Davy concluded his lectures and passages she had read in Sir Walter Scott's chivalrous poetry. The earlier examples of Guillaume Franoise Rouelle and Joseph Black indicate that such a lecturing style was not intrinsic to chemistry, and is rather reflective of the influence of an upper class female audience in the Napoleonic era.

As Linda Colley has argued, by taking on patriotic activities such as raising subscriptions, women were becoming more visible in public.⁵ This led to an increase in prescriptive literature to dissuade them from participating in public activities. Likewise, the negative commentary from Henry Brougham, John Bostock and Francis Horner, show that the scale in which women were subscribing to the Royal Institution was causing alarm. Indeed, the audience at the Royal Institution fluctuated between being a third, to a half, to perhaps even mostly female.

³ Johns-Putra, "Blending Science with Literature," 44.

⁴ Samuel Taylor Coleridge, January 1804, *The Notebooks of Samuel Taylor Coleridge*, volume 2, entry 1855.

⁵ Colley, *Britons*, 250.

This study has identified 844 women who subscribed to the Royal Institution from 1799 until 10 April 1812. While this study has drawn in detail upon the accounts of twenty-one women, prosopography has been used to get a more representative picture of the whole audience. The results of the prosopographical study have shown that most of the women who subscribed to the Royal Institution did so from fashionable addresses in the West of London, and that around two-fifths of female audience members subscribed with a female friend or relative. Prosopography was also used to determine who were the most active of the earlier distinguished patronesses (Viscountess Palmerston and Margaret Bernard), justifying a focus in Chapter 3, “A ‘partly obscure reversal,’” on these two women. However, prosopography has the problem of the dark number: the Managers’ Minutes have provided a large part of the prosopographical data, yet women were not recorded in the Managers’ Minutes between 1802 and 1809. Furthermore, women who attended lectures as the wife or unmarried daughter of a Proprietor were not recorded in the sources used for the prosopographical study. The dark number, women for which no data is available, skews how representative this study is of the whole female audience.

When the influx of upper and middle class women to the Royal Institution from 10 February 1800 onwards is taken into account, the reversal in the Royal Institution’s purposes can no longer be called “partly obscure.”⁶ Schemes to give workmen a scientific education at the Royal Institution, including the School for Mechanics and free lecture tickets, never made it past their trial period. The Model Room the Managers proposed was very similar to the scheme of the Society of Arts, but paid less credit to the ingenuity of the manufacturer, as Matthew Robinson Boulton pointed out to his father. The Managers goal to “produce that unity in pursuit between manufacturers and men of science” through the Royal Institution was not realised.⁷ The role that women from the upper classes might play at the new scientific institution was only added to a later version of the Royal Institution’s

⁶ Klancher, *Transfiguring the Arts and Sciences*, 54.

⁷ *Prospectus of the Royal Institution*, 9.

Prospectus, after 21 January 1800.⁸ This last-minute addition of two paragraphs to a *Prospectus* otherwise devoted to uniting manufacturers and men of science is illustrative of the Managers' original focus on getting manufacturers and artisans into their Institution, not upper class women.

Using distinguished patronesses, however, was an innovation that was successful. That women attended the Royal Institution in such numbers was a result of the influence of this handful of women from the upper classes. Although the practice of admitting women to scientific lectures came from Glasgow's Anderson's Institution, via the influence of Thomas Garnett, it was not until the distinguished patronesses were appointed that women began to subscribe to the Royal Institution. I have explained the distinguished patronesses' interest in the Institution in the first instance by applying Colley's concept of the service élite.⁹ To resist French Republicanism and recover their reputation after defeat in America, the aristocracy adopted "a far more self-conscious rhetoric and appearance of service to the public and to the nation."¹⁰ This was achieved for example through more regular attendance at parliament,¹¹ purchasing an officer rank in the army or raising a volunteer regiment at home.¹² But while Colley listed ways in which male patricians made themselves part of a service élite, she left open the question whether women in the aristocracy fashioned themselves as a service élite too.

I have argued that supporting the Royal Institution was one way in which aristocratic women could prove themselves part of the service élite. The two most active patronesses, Viscountess Palmerston and Margaret Bernard, had previous experience in scientific philanthropic projects. Viscountess Palmerston used the texts of Count Rumford to establish a school for the poor in her country parish, the kitchen of which in turn influenced Count Rumford's design for his scientific kitchen at the Royal Institution. Margaret Bernard worked with her husband Thomas

⁸ Compare the prospectuses dated 21 January 1800, RI/MS/AD/02/A/01/A in Box 326, with the prospectuses published later in 1800 but undated, RI/MS/AD/02/A/01/A in Box 261, in which two extra paragraphs have been added to the end.

⁹ Colley, *Britons*, 192.

¹⁰ Colley, *Britons*, 192.

¹¹ Colley, *Britons*, 188.

¹² Colley, *Britons*, 184.

Bernard at the Foundling Hospital (that was fitted with Rumford stoves) and for the *Society for Bettering the Condition and Increasing the Comforts of the Poor*. Morris Berman's history of the early Royal Institution made no mention of female involvement in its success or female interest in scientific philanthropy, and even removed female agency by altering the original sources.¹³

Upper class women played an integral role at the Royal Institution because they made great diffusers of scientific knowledge. When reflecting on the causes that led to the success of his elder brother's lectures, John Davy mused that as the Royal Institution was made fashionable by a handful of high society figures, it was bound to become popular.¹⁴ Margaret Bernard reached a similar conclusion, when she predicted in her report for the *Bettering Society* that the all-female Repositories for the works of poor women in fashionable Bath and London would be imitated in country towns across England.¹⁵ In her instructions of how to replicate a soup kitchen in the village of Iver, Buckinghamshire, Bernard recommended that the benefactors eat the soup themselves in front of the poor to make the soup seem more appealing.¹⁶ This power to lead by example, a central tenant of Rumfordian scientific philanthropy, gave upper class women a particular role to play at the new scientific institution. The *Prospectus* predicted that fashionable women would diffuse a taste for "experimental improvement and investigation" among their rank.¹⁷ Considering that caricaturists like James Gillray were peddling the image of a degenerate aristocracy,¹⁸ the Royal institution sold itself as a harbinger of "good taste, with its inseparable companion, good morals,"¹⁹ that would assist the transformation of the aristocracy into a service élite. Moreover, it was female aristocrats to whom contemporaries ascribed the power of being able to change tastes, for better or worse.

¹³ Berman, *Social Change and Scientific Organization*, 27 and 98.

¹⁴ John Davy, *Memoirs of the Life of Sir Humphry Davy*, 1:153.

¹⁵ Bernard, "Extract from an account of the Bath repository," 2:318.

¹⁶ Bernard, "Extract from an account of a village soup shop," 1:166.

¹⁷ *Prospectus of the Royal Institution*, 15.

¹⁸ Donald, *The Age of Caricature*, 107.

¹⁹ *Prospectus of the Royal Institution*, 15.

The distinguished patronesses were well positioned to aid the Royal Institution in its aim to diffuse science across Britain. A song from Thomas Moore's comic opera, *M.P., or, The Blue-Stocking* (1811), is illustrative of the power ascribed to upper class women to lead by example. Lady Bab Blue's manservant, Davy (a satire of Humphry Davy), laments that the tailor, wine-maker, grocer and barber have all fallen victim to the fashion for learning, to the detriment of themselves and their trades. Moreover, the trouble stemmed from his mistresses' love of showing her learning:

Oh this writing and reading!
'Tis all a fine conjuration,
Made for folks of high breeding,
To bother themselves and the nation!²⁰

What is pertinent is that the source of all this national bother was Lady Bab Blue. When the Royal Institution was assimilated into the Season, it became subject to the influence of the fashionable world – a world of female power.²¹ Thus Brougham was compelled to protest in the *Edinburgh Review*, “We demand if the world of science which Newton once illuminated is to be as changeable in its modes as the world of taste, which is directed by the nod of a silly woman or pampered fop?”²² Brougham's outcry and Moore's comic opera indicate that the scale in which women were partaking in chemical study was causing alarm, as opposed to showing that women were being blocked from chemical sciences.

To check the advance of women into the chemical sciences, male commentators pronounced fashion and chemistry incompatible, “very incongruous” in the words of Francis Horner.²³ In fact, this need not have been the case, as the examples of the Duchess of Devonshire and Lady Hippisley, and indeed the very success of the Royal Institution's chemical lectures among a fashionable female audience, demonstrate. To counter the damage a female audience was doing to his reputation

²⁰ Moore, *M.P., or, The Blue-Stocking*, 7.

²¹ Donald, *The Age of Caricature*, 85-86.

²² Brougham, review of Thomas Young's 1802 Bakerian Lecture “On the Theory of light and Colours,” 452.

²³ Horner, 31 March 1802, *Memoirs of Francis Horner*, 109.

(vide Thomas Moore's comic opera), Davy began to articulate an artificial separation between "fashionable" and "scientific" persons within his audience. The chemists John Dalton, Thomas Garnett, Andrew Ure and William Thomas Brande employed the same tactic. The beginnings of an ideal, passive, female public audience for science, as defined by Higgitt and Withers in their study of the BAAS meetings of the Victorian era,²⁴ can be traced back to the moment when women began to audit institutional scientific lectures in great numbers in the early-nineteenth century.

Further evidence of the scale of female involvement in chemistry is illustrated in the chemical turn of Bluestocking satire. From its coining in the mid-eighteenth century, Myers has argued that Bluestocking was "a name around which associations with and feelings about intellectual women could cluster."²⁵ Following the success of Davy's lectures, the Bluestocking lady became a chemist. She was not well received: during the conservative backlash following the French Revolution, the term Bluestocking became more of an insult. However, I have shown that the term did survive in its original, non-pejorative sense, applying to both sexes, among the Royal Institution audience. One other consequence of having a fashionable female audience at the Royal Institution, aside from chemistry's "chivalrous" turn, was that chemistry became bound up in the archetypal, and much ridiculed, figure of the female intellectual – the Bluestocking.

The influential women who attended the Royal Institution were seen as a threat to science (in Henry Brougham's opinion), or at least their interest was deemed unnatural (in Francis Horner's opinion). Prescriptive literature would not object to a woman being educated, but it would insist she would not show her knowledge, else she be called a pedant. One reviewer in the *Monthly Review* praised Eleanor Anne Porden's *The Veils* (1815) and welcomed the diffusion of knowledge among women provided it did not interfere with their domestic duties.²⁶ However, he warned

²⁴ Higgitt and Withers, "Science and Sociability," 17.

²⁵ Myers, *The Bluestocking Circle*, 303.

²⁶ Anonymous, "Miss Porden's Veils, a poem," *The Monthly Review; or Literary Journal* 85 (January 1818): 39-54, 39.

Porden, “she has to learn the art of not displaying her learning,”²⁷ and indeed accused Porden of “pedantry.”²⁸ The reviewer then makes a display of his knowledge by using a good dose of Latin and, pedantically, one might say, correcting minute details in Porden’s chemical imagery.²⁹

Mid-twentieth and early-twentieth historiography has tended to portray these women as a Davy fan club, without situating the attraction of Davy in an historical context, namely, in the cult of heroism of the Napoleonic era and the making of a service élite. The pressure on upper class women to conceal their abilities has perhaps thrown historians of the early Royal Institution. The negative or hesitant commentary from contemporaries like Brougham and Horner has not been previously connected to a resistance of the power that fashionable women were thought to have: like the first Bluestockings, these women were rulers of opinion.

7.2 Chemistry out of fashion?

A comparison of the results of Sophie Forgan’s prosopographical study with this study points to a sharp decline in female audiences at the Royal Institution. I have shown that from 1800 until 1812, the audience fluctuated somewhere between being a third, to a half, to perhaps even mostly female. Forgan has shown that by 1840, women made up only 0.6% of membership at the Royal Institution.³⁰ Further research on what caused this decrease in female membership in the intervening three decades is needed, but I will now speculate upon a couple of possible leads. First, I have argued that the influence of the distinguished patronesses was *fundamental* in bringing upper and middle class female audiences to the Royal Institution. After 1810, the Royal Institution no longer had distinguished patronesses – there were no influential women who had the power to encourage the next generation to attend the lectures.

²⁷ Anonymous, “Miss Porden’s Veils, a poem,” 53.

²⁸ Anonymous, “Miss Porden’s Veils, a poem,” 46.

²⁹ Anonymous, “Miss Porden’s Veils, a poem,” 52-53.

³⁰ Forgan, *The Royal Institution of Great Britain, 1840-1873*, 90.

Second, the Royal Institution was facing increasing competition, for example from the London Institution (founded in 1805, which offered lectures from 1819),³¹ Surrey Institution (1808) and Russell Institution (1808). How much these audiences would have overlapped requires further study. Located in Bloomsbury on Great Coram Street, the Russell Institution would have competed for the upper and middle class women that this thesis has described. The Russell Institution has been described as being more literary orientated,³² and as some of the most famous female writers of the day attended the Royal Institution they may well have also attended the Russell Institution.

The London Institution lecture theatre was located in Moorfields and according to Janet Cutler the Institution served mercantile interests.³³ Using prosopography, Cutler confirmed Morris Berman's claim that Proprietors with commercial interests defected from the Royal to the London Institution.³⁴ However, as I have argued, it was Annual Subscribers, not Proprietors, who were directing the Royal Institution's activities by the time the London Institution was founded in 1805. From Cutler's prosopographical analysis it appears there were no women among the London Institution's Proprietors.³⁵ Yet, in a reminiscence about a series of lectures he gave on the Art of Printing at the London Institution in 1823, Thomas Frognall Dibdin noted, "I was always much struck with the number of female Quakers in those audiences."³⁶ A contemporary engraving of the chemistry lectures given by Friedrich Accum (1769-1838) at the Surrey Institution by Thomas Rowlandson (see Figure 10) suggests there was a "creditably strong female moiety" at the lectures, as argued by Frederick Kurzer.³⁷ According to Kurzer, the Surrey Institution, on the south bank of Blackfriars Bridge,³⁸ was also established to better serve the mercantile interests that were not being met by the Royal Institution.³⁹ Berman's

³¹ Cutler, *The London Institution, 1805-1933*, 125.

³² Frederick Kurzer, "A History of the Surrey Institution," *Annals of Science* 57 (2000): 109-141, on 64.

³³ Cutler, *The London Institution, 1805-1933*, 9 and 58.

³⁴ Cutler, *The London Institution, 1805-1933*, 6-8.

³⁵ Cutler, *The London Institution, 1805-1933*, Appendix 1 and Appendix 2.

³⁶ Dibdin, *Reminiscences of a Literary Life*, 1:238.

³⁷ Kurzer, "A History of the Surrey Institution," 125.

³⁸ Kurzer, "A History of the Surrey Institution," 117.

³⁹ Kurzer, "A History of the Surrey Institution," 111.

prosopographical focus on Proprietors rather than Subscribers precluded him from forming the conclusion that women had any influence at the Royal Institution. It would be a mistake therefore, to conclude that Proprietors' interests at both the London and Surrey Institutions represent the whole story of the audiences.



Figure 10 – Surrey Institution, Thomas Rowlandson, published in R. Ackerman, *The Microcosm of London*, (London, 1808-1810)

Outsiders, women like Parisian-salon raised Madame de Staël, and Amelia Opie, when she turned dissenter and was living in Norwich, were able to display their knowledge with less fear of the consequences. It is noteworthy then, that Camilla Leach and the Rayner-Canhams have shown that strong traditions of female scientific education continued in the Quaker community in the first-half of the nineteenth century.⁴⁰ In their survey of chemistry at British independent girls' schools, the Rayner-Canhams noted that it was in Quaker schools, "outside the

⁴⁰ Camilla Leach, "Religion and Rationality: Quaker Women and Scientific Education," *History of Education* 35 (2006): 69-90; Marlene Rayner-Canham and Geoff Rayner-Canham, *A Chemical Passion: the forgotten story of chemistry at British independent girls' schools, 1820s-1930s* (London: UCL Institute of Education Press, 2017).

mainstream of education,” that girls were first to receive a chemical education in the 1820s and 1830s.⁴¹ Around 1820, chemistry was taught at a Quaker girls’ school near Bristol ran by Sarah and Harriet Hoare,⁴² and William Allen and Grizell Hoare, later to become Allen’s third wife, founded the Newington Academy for Girls (1824), which also featured chemistry on the curriculum.⁴³ As the Rayner-Canhams noted, Allen gave lectures at the Royal Institution.⁴⁴ The Rayner-Canhams argued that it was Marcet’s *Conversations on Chemistry* (1806) that made the subject appropriate for female study.⁴⁵ While noting Marcet’s connection to the Royal Institution,⁴⁶ the Rayner-Canhams did not consider the influence upper class women at the Royal Institution had on public opinion regarding chemistry, an influence that this thesis advocates.

While women made up only 0.6% of subscribers at the Royal Institution in 1840,⁴⁷ women came to be the most “prominent part” of the audiences at the meetings of the British Association for the Advancement of Science, which began in 1831.⁴⁸ Some BAAS audiences may have even been mostly female.⁴⁹ But whether or not women were in the majority, they were the part of the audience that drew the most comment,⁵⁰ much like the women at the Royal Institution and the Bluestockings before them. Furthermore, like the Bluestockings and the Royal Institution audiences, many of the women at the BAAS meetings came from the upper and upper-middle classes. As Higgitt and Withers have noted, when William Buckland worried in 1832 that female attendance at the reading of scientific papers risked turning the BAAS meeting into an “Albemarle dilettanti meeting,” he was referring to the Royal Institution, on Albemarle Street.⁵¹ Buckland’s contrasting of the female audiences at the Royal Institution with “a serious philosophical union of

⁴¹ Marlene Rayner-Canham and Geoff Rayner-Canham, *A Chemical Passion*, 37.

⁴² Marlene Rayner-Canham and Geoff Rayner-Canham, *A Chemical Passion*, 26.

⁴³ Marlene Rayner-Canham and Geoff Rayner-Canham, *A Chemical Passion*, 27.

⁴⁴ Marlene Rayner-Canham and Geoff Rayner-Canham, *A Chemical Passion*, 27.

⁴⁵ Marlene Rayner-Canham and Geoff Rayner-Canham, *A Chemical Passion*, 22.

⁴⁶ Marlene Rayner-Canham and Geoff Rayner-Canham, *A Chemical Passion*, 23.

⁴⁷ Forgan, *The Royal Institution of Great Britain, 1840-1873*, 90.

⁴⁸ Higgitt and Withers, *Science and Sociability*, 2.

⁴⁹ Higgitt and Withers, *Science and Sociability*, 13.

⁵⁰ Higgitt and Withers, *Science and Sociability*, 9-11.

⁵¹ Higgitt and Withers, *Science and Sociability*, 7.

working men,”⁵² echoes the outcries of Henry Brougham and worries of Francis Horner thirty years earlier, and the artificial separation of fashionable women and serious science.

However, unlike the Royal Institution and Bluestocking salons of Elizabeth Montagu, the BAAS meetings were not hosted on fashionable territory. I have argued that the Royal Institution lectures were assimilated into “the Season.” The BAAS meetings instead became part of domestic tourism.⁵³ The nomadic nature of the BAAS meetings may have made a crucial difference. Throughout the eighteenth century, a favourite trope of the caricaturists had been to contrast London’s fashionable West End against provincial, more wholesome ways of life.⁵⁴ Outside of London’s West End, with no distinguished patronesses, the BAAS meetings were far less susceptible to “female dominated metropolitan dissipation.”⁵⁵ These crucial elements were absent at the BAAS Meetings, which may well have allowed for a more acquiescent female audience.

In admitting women to the lectures, the Royal Institution was following the practice set by Anderson’s Institution in Glasgow. However, the Royal Institution was original in adapting its admissions procedure to existing upper-class female networks in London. Of key importance were the distinguished patronesses who gathered the Royal Institution’s female audience. Arianne Chernock has argued that a “stronger case for the importance of Anderson’s in the history of women’s higher education in Britain”⁵⁶ can be made by tracing the female audiences at the Royal Institution to Anderson’s Institution in Scotland via Thomas Garnett. Chernock’s argument can be taken further, as the influence of the fashionable women at the Royal Institution in turn spread the practice of admitting women to other arts-and-sciences institutions. The female audience at the Royal Institution was used to advertise scientific lectures elsewhere: an advertisement placed in the *Liverpool Mercury* for Robert Bakewell’s geological and mineralogical lectures in Liverpool,

⁵² Higgitt and Withers, *Science and Sociability*, 6.

⁵³ Higgitt and Withers, *Science and Sociability*, 8.

⁵⁴ Donald, *The Age of Caricature*, 81-82.

⁵⁵ Donald, *The Age of Caricature*, 76.

⁵⁶ Arianne Chernock, *Men and the Making of Modern British Feminism* (Stanford, California: Stanford University Press, 2010), on 50.

was supplemented with the observation that “three to four hundred ladies of the highest rank and respectability” had audited Davy’s 1811 course on geology at the Royal Institution.⁵⁷

Female education came to be seen as one of the main objects of the institutions that were established on the model of the Royal Institution. Eleanor Anne Porden referred to the Royal Institution in a letter to her fiancé as “my Alma Mater.”⁵⁸ On 1 November 1822 at the Surrey Institution and again on 20 December 1822 at the Russell Institution, James Jennings gave a lecture *On the History and Utility of Literary Institutions*. For Jennings, the value of the Institutions lay in their making women “partakers in our literary and scientific information.”⁵⁹ Jennings praised the “brilliant constellation” of his talented female contemporaries, among whom he named women connected to the Royal Institution as examples: Amelia Opie, Anna Letitia Barbauld, Eleanor Anne Porden and Maria Edgeworth.⁶⁰

Davy’s successor at the Royal Institution, William Thomas Brande, agreed with Jennings. In his chemistry course delivered at the London Institution in 1819, Brande concluded his introductory lecture, a lecture that commemorated the opening of the new building, with “the opportunities offered by establishments of the nature of this Institution in improving female education.”⁶¹ A female audience for science was not grudgingly accepted – it was desirable. Yet although Brande stated that Britain’s arts-and-sciences institutions provided opportunities in female education, Brande cautioned his audience at the London Institution that “it was not our intention to invite them [women] into the laboratories,” as has been noted by Jan Golinski.⁶²

What Golinski did not note, however, is that Brande had copied the recommendation from Davy: Brande was quoting from the lecture given by Davy at

⁵⁷ Anonymous, “Advertisement,” *Liverpool Mercury*, 9 August 1811, 47c.

⁵⁸ Eleanor Anne Porden to John Franklin, 4 June 1823, D3311/8/3/19.

⁵⁹ Jennings, *A Lecture on the History and Utility of Literary Institutions*, 105.

⁶⁰ Jennings, *A Lecture on the History and Utility of Literary Institutions*, 106-7.

⁶¹ Brande, *An Introductory Discourse*, 36.

⁶² Golinski, *Science as Public Culture*, 261.

the Royal Institution on 3 March 1810.⁶³ Alongside the practice of admitting women to arts-and-sciences institutions, prescribed limits to female education were being transferred too. While praising learned women, Jennings simultaneously remarked, “the abstruse parts of science are not suited to their tastes or inclinations.”⁶⁴ As Davy had advised Apreece that women ought to dwell “on topics of general interest,”⁶⁵ Brande too wanted women to obtain a superficial level of knowledge only, he did not recommend the “abstract sciences” as part of female education, and instead Brande advised women to acquire “general information.”⁶⁶

However, examples taken from the Royal Institution audience used in this thesis show that this prescription was not necessarily obeyed. Lady Hippisley and Jane Marcet both did laboratory experiments, as did Frederica Sebright and Elizabeth Ilive. Mary Ann Gilbert’s papers on agricultural experiments were presented in the statistics section at two successive meetings of the British Association for the Advancement of Science, in Plymouth in 1841 and in Manchester in 1842.⁶⁷ Mary Somerville, who subscribed as Mrs Greig, certainly had a taste for the abstract parts of the sciences. At Anderson’s Institution in the lectures of 1802, a Miss Macintosh, a Miss Geddes, a Miss Neilson, a Miss Smith, a Miss Mitchell⁶⁸ all opted to attend George Birkbeck’s morning course rather than the popular course that had been designed to avoid “abstract mathematical reasoning” and was advertised as being suitable for ladies.⁶⁹ Miss Geddes returned in February 1803 to attend Birkbeck’s evening course, rather than the popular course.⁷⁰ In 1804, a Mrs Bannatine, a Miss Bannatine, a Miss Isabella Bannatine, a Miss M. Bannatine, a Miss A. Grahame, a

⁶³ Davy, *3 March 1810 lecture*, 37.

⁶⁴ Jennings, *A Lecture on the History and Utility of Literary Institutions*, 105.

⁶⁵ Humphry Davy to Jane Apreece, 1 November 1811, archives of the Royal Institution of Great Britain, RI GB HD/25/5a, i-ii.

⁶⁶ Brande, *An Introductory Discourse*, 37-38.

⁶⁷ Gilbert, “Results of some Experiments on a System of small Allotments and Spade Husbandry,” 98; and Gilbert, “On the Advantages arising from Spade Husbandry and Agricultural Education,” 99.

⁶⁸ *Anderson’s Institution subscription lists*.

⁶⁹ *Anderson’s Institution Minutes, 1796-1799*, 24 October 1796, 65.

⁷⁰ *Anderson’s Institution subscription lists*.

Miss Mitchell, a Miss Macintosh and again, Miss Geddes, signed up for Andrew Ure's chemical course, not the popular course advertised for Ladies.⁷¹

As Amanda Vickery noted, "the capacity of women's history to repeat itself is rarely discussed," despite the bias in the literature towards evidence that prescribed as opposed to described female behaviour.⁷² There are tropes about female audiences for science that continued from the Royal Institution lectures into the BAAS meetings. Newspapers dismissed the seriousness of audiences at the BAAS by focussing on the women's bonnets.⁷³ In 1805, Catherine Fanshawe had parodied the importance women at the Royal Institution were alleged to give to their bonnets in her poem, *Ode, by Miss Berry*. When women were attentive at the BAAS, the papers dismissed this as a "joke or inexplicable,"⁷⁴ as the female note-takers at the Royal Institution were dismissed by Louis Simond.⁷⁵ Complaints about the female audience "flooding" the BAAS with "small talk" and their "gift of the gab,"⁷⁶ echo Robert Southey's earlier grumble that women were diminishing science by using it as a topic for their "conversation parties."⁷⁷

The decline in female attendance at the Royal Institution would fit with the trend observed by both Ann B. Shteir and Londa Schiebinger, who have argued that the nineteenth century saw women become increasingly barred from science as it became more professionalised.⁷⁸ Schiebinger spoke of women's involvement with scientific institutions, as a varied landscape, "rolling with peaks of opportunity and valleys of disappointment."⁷⁹ For Schiebinger, the early nineteenth century would mark a valley of disappointment. Thomas Garnett was of the opposite opinion. At the conclusion of his first lecture course at Anderson's Institution in spring 1797, Garnett told the mixed-sex audience assembled that they were part of "an era in

⁷¹ Anderson's Institution subscription lists.

⁷² Vickery, "Golden age to separate spheres?," 383.

⁷³ Higgitt and Withers, "Science and Sociability," 10-11.

⁷⁴ Higgitt and Withers, "Science and Sociability," 11.

⁷⁵ Simond, 24 January 1810, *Journal of a tour and residence in Great Britain*, 1:43.

⁷⁶ Higgitt and Withers, "Science and Sociability," 11.

⁷⁷ Southey, *Letters From England*, 3:315.

⁷⁸ Shteir, *Cultivating Women, Cultivating Science*, 235; and Schiebinger, *The mind has no sex?*, 245 and 260-264.

⁷⁹ Schiebinger, *The mind has no sex?*, 11.

the annals of female education which posterity may contemplate with peculiar pleasure.”⁸⁰

Over twenty years later, after female audiences had become a well-established feature of arts-and-sciences institutions, William Thomas Brande congratulated the audience assembled at his inaugural lecture at the London Institution for taking a more enlightened stance on female education than their forebears. Brande quoted Samuel Johnson’s *The Rambler* as evidence that in the preceding eighteenth century, “all appearance of science [was] particularly hateful to women.”⁸¹ John Ayrton Paris used the same Johnson quote in his reflection on Davy’s success, remarking that if Johnson had visited the Royal Institution he would have to rescind the passage.⁸² However, Johnson’s quote was taken out of context in both instances. The original passage reads, “*There prevails among men of letters an opinion, that all appearance of science is particularly hateful to women.*”⁸³ For Johnson, part of the original Bluestocking Circle, the problem lay not in women’s capacity for science, but in the assumption that women had no fondness for the subject. Yet Johnson also speculated that in the seventeenth century women might have hated science, in contrast to his own progressive era.⁸⁴ Accepting such a speculation, even from one so well esteemed as Johnson, would be unwise.

⁸⁰ Anderson’s *Institution Minutes, 1796-1799*, 28 April 1797, 83.

⁸¹ Brande, *An Introductory Discourse*, 37.

⁸² Paris, *The Life of Sir Humphry Davy*, 91.

⁸³ Johnson, *The Rambler*, 173, 12 November 1751, my emphasis.

⁸⁴ Johnson, *The Rambler*, 173, 12 November 1751.

Bibliography

Archives

The administrative archives of the Royal Institution of Great Britain were the primary resource for this thesis and I am very grateful to Jane Harrison, Frank James and Charlotte New for their kind permission and assistance in consulting these archives. I also owe much to the digitisation of nineteenth-century newspapers by the British Newspaper Archive. In addition I consulted:

Anderson's College Records, University of Strathclyde Archives, OB.

Boddington, Samuel. Boddington Family Collection, London Metropolitan Archives, CLC/426 /MS10823/005.

Cavendish, Georgiana, Duchess of Devonshire. Catalogue of the Fifth Duke of Devonshire, Chatsworth House, Derbyshire, CS5/1822.1.

Dinwiddie, James. Dalhousie University Archives, Halifax, Nova Scotia, Canada, MS/2/726. James Dinwiddie's notebooks have been digitised.

Edgeworth, Maria. *Women, Education and Literature: The Papers of Maria Edgeworth, 1768-1849. Part 2: The Edgeworth Papers from the National Library of Ireland*, MS 10166/7 from microfilm (Malborough: Adam Matthews Publications, 1996) Cardiff University Special Collections.

Gilbert, Mary Ann. Enys papers, EN, Cornwall Record Office, Truro. Some of the papers of her husband, Davies Gilbert, DG, are held at the same archive.

Hankey, Julia. Julia Hankey's memoirs were transcribed by the chemist Lionel Felix Gilbert (1893-1955) for a biography on William Hyde Wollaston. Gilbert Papers, University College London Special Collections, box 1, file 3, enclosure A "Typed copies of references and memorials to Wollaston."

Hippisley, Lady Elizabeth Anne. Papers of the Hippisley family of Ston Easton, Somerset Heritage Centre, Taunton, DD/HI/A/331. Other papers and

correspondence of Lady Hippisley form part of the MS Gunther 68 collection at the Museum of the History of Science, University of Oxford.

Palmerston, Viscountess Mary Mee. Broadlands Archives, University of Southampton special collection, BR.

Porden, Eleanor Anne. Papers of the Gell Family of Hopton, Derbyshire Record Office, Matlock, D311.

Smith, Lady Pleasance. Suffolk Record Office, Lowestoft, 12/1 and 12/2.

This thesis has also been made possible by the Davy Letters Project, which aims in 2019 to publish the first ever edition of the Collected Letters of Humphry Davy, edited by Tim Fulford, Jan Golinski, Frank A. J. L. James, David Knight, Andrew Lacey and Sharon Ruston. Until the collection is published, the letters transcribed by the editors have been available on the groups' website, <http://www.davy-letters.org.uk>. When I have referenced letters transcribed by this project, I have indicated this in the footnotes.

Printed Sources

Ackermann, Rudolph, *The Microcosm of London* in three volumes (London, 1808-1810)

Adeane, Jane H. (ed.), *The Early Married Life of Maria Josepha Stanley, with extracts from Sir John Stanley's 'Præterita.'* (London, New York and Bombay: Longmans, 1899)

Alic, Margaret, *Hypatia's Heritage. A History of Women in Science from Antiquity to the Late Nineteenth Century* (London: The Women's Press Limited, 1986)

Allan, Thomas "Royal Institution – May 25th," *Caledonian Mercury*, 3 June 1811, 2b; "Royal Institution," *Chester Chronicle*, 7 June 1811, 3d; and "Royal Institution," *Lancaster Gazette*, 22 June 1811, 4d

Allan, Thomas, *Sketch of Mr. Davy's Lectures on Geology, Delivered at the Royal Institution 1811, from notes taken by a Private Gentleman* (dated 1811), British Library, UIN: BLL01000881717

Altick, Richard D., *The Shows of London* (Cambridge, Massachusetts and London, England: The Belknap Press of Harvard University Press, 1978)

Amin, Wahida, *The Poetry and Science of Humphry Davy* (University of Salford PhD thesis, 2013)

Anonymous, *Royal Cornwall Gazette*, 18 April 1812, 3b

Anonymous, "Advertisement," *Liverpool Mercury*, 9 August 1811, 47c

Anonymous, "Advertisement," *The Lady's Magazine; or Entertaining Companion for the Fair Sex* 42 (January 1811): 2

Anonymous, "Bankrupts," *The European Magazine and London Review* (May 1784): 400

Anonymous, "Biographic Sketch of Lord Wellington," *The Lady's Magazine; or Entertaining Companion for the Fair Sex* 42 (January 1811): 5

Anonymous, "Dr Davy's Lectures at the Royal Institution," *Observer*, 14 April 1811, 2d and "Royal Institution – April 13th," *Caledonian Mercury*, 22 April 1811, 4a

Anonymous, "Dr. Davy's Lectures at the Royal Institution," *Kentish Gazette*, 24 April 1812, 2a

Anonymous, "Eleanor Anne Franklin, Obituary," *The Times*, 24 February 1825, 2e

Anonymous, "Foreign Affairs," *The Lady's Magazine; or Entertaining Companion for the Fair Sex* 42 (May 1811): 235

Anonymous, "Foundling, April 30, 1807," *Morning Post*, 1 May 1807, 1d

Anonymous, "Improved filtration of water," *The Lady's Magazine; or Entertaining Companion for the Fair Sex* 42 (May 1811): 227

Anonymous, "London Fashions," *The Lady's Magazine; or Entertaining Companion for the Fair Sex* 32 (January 1801): 39

Anonymous, "Marriages and Deaths," *The Lady's Magazine; or Entertaining Companion for the Fair Sex* 38 (1807): 564

Anonymous, "Married," *Morning Chronicle*, 13 April 1812, 3e

Anonymous, "Memoirs of the Progress of Manufactures, Chemistry, Science, and the Fine Arts," *The Scot's Magazine*, 1 July 1808, 523b

Anonymous, "Memories of Montalbert," *The Lady's Magazine; or Entertaining Companion for the Fair Sex* 42 (February 1811): 50

Anonymous, "Miss Porden's Veils, a poem," *The Monthly Review; or Literary Journal* 85 (January 1818): 39-54

Anonymous, "Missionaries," *Northampton Mercury*, 18 May 1799, 4a

Anonymous, "Mr. Davy's Lectures on the Elements of Chemical Philosophy," *Morning Chronicle*, 24 February 1812, 3b

Anonymous, "On the importance of dress," *The Lady's Magazine; or Entertaining Companion for the Fair Sex* 32 (February 1801): 91-94

Anonymous, "Parisian Fashions," *The Lady's Magazine; or Entertaining Companion for the Fair Sex* 36 (January 1805): 32

Anonymous, "Particulars respecting Tycho-Brahe," *The Lady's Magazine; or Entertaining Companion for the Fair Sex* 42 (May 1811): 224

Anonymous, "Plan for the relief of the poor," *Newcastle Courant*, 16 November 1799, 2b-c.

Anonymous, "Proceedings of Learned Societies, Royal Institution," *Monthly Magazine*, 1 March 1811: 156-159

Anonymous, "Royal Institution," *Morning Chronicle*, 8 March 1810, 3c

Anonymous, "Royal Institution," *Observer*, 24 February 1811, 3a and *Caledonian Mercury*, 4 March 1811, 4a

Anonymous, "Royal Institution," *Observer*, 3 March 1811, 2d

Anonymous, "Royal Institution," *Observer*, 5 May 1811, 4c and "Dr. Davy's Lectures," *Royal Cornwall Gazette*, 11 May 1811, 4e

Anonymous, "Royal Institution," *Morning Chronicle*, 27 January 1812, 3d

Anonymous, "Scientific Institution," *Journal of Natural Philosophy, Chemistry and the Arts* 34 (January 1813), 79

Antrobus, Jocelyn J., "Lady Hippisley: Her Day Book, 1814," *Country Life Magazine* (26 November 1943): 942-944

Apotheke, Jan and Livia Simon Sarkadi (eds.), *European Women in Chemistry* (Weinheim: Wiley-VCH, 2011)

Ashworth, William J., "The Calculating Eye: Baily, Herschel, Babbage and the Business of Astronomy," *The British Journal for the History of Science* 27 (1994): 409-441

Ashworth, William J., "'System of Terror': Samuel Bentham, accountability and dockyard reform during the Napoleonic Wars," *Social History* 23 (1998): 63-79

Austen, Jane, *Sense and Sensibility* in three volumes (London: T. Egerton, 1811)

Austen, Jane, *Pride and Prejudice* in three volumes (London: T. Egerton, 1813; 2nd ed.)

Austen, Jane, *Northanger Abbey and Persuasion* in four volumes (London: John Murray, 1818)

Averley, Gwen, "'The Social Chemists': English Chemical Societies in the Eighteenth and Early Nineteenth Century," *Ambix* 33 (1986): 99-128

Bahar, Saba, "Jane Marcet and the Limits to Public Science," *The British Journal for the History of Science* 34 (2001): 29-49

Bainbridge, Simon, *British Poetry and the Revolutionary and Napoleonic Wars: Visions of Conflict* (Oxford and New York: Oxford University Press, 2003)

Bange, Raphaël, "Base de données pour une étude prosopographique: les auditeurs du cours de Lamarck au Muséum National D'Histoire Naturelle (1795-1823)," *Annales Historiques de la Révolution Française* (Avril/Juin 2000): 205-211

Barbauld, Anna Laetitia, "Scott's Lay of the Last Minstrel," *Annual Review* 3 (1804): 600-604

Barbauld, Anna Laetitia, *Eighteen Hundred and Eleven, a Poem* (Philadelphia: Anthony Finley, 1812)

Barnes, Timothy D. "Prosopography modern and ancient," in K.S.B. Keats-Rohan (ed.), *Prosopography Approaches and Applications: A Handbook* (Oxford: Prosopographica et Genealogica, 2007): 71-82

Bautz, Annika, *The Reception of Jane Austen and Walter Scott: A Comparative Longitudinal Study* (London: Continuum, 2017)

Beesly, A. H., *Sir John Franklin* (London: The New Plutarch, Marcus Ward and Co., 1881)

Bell, Eva Mary, *The Hamwood Papers of the Ladies of Langollen* (London: Macmillan and Co., 1930)

Bence Jones, Henry, *The Royal Institution: its Founder and its First Professors* (London: Longmans, Green and co., 1871)

Berman, Morris, *Social Change and Scientific Organization: The Royal Institution, 1799-1810* (Johns Hopkins University PhD thesis, 1971)

Berman, Morris, "The Early Years of the Royal Institution 1799-1810: A Re-Evaluation," *Science Studies* 2 (1972): 205-240

Berman, Morris, *Social Change and Scientific Organization. The Royal Institution, 1799-1844* (London: Heinemann Educational Books Ltd, 1978)

Bernard, Margaret, "Extract from an account of a village soup shop, at Iver in the county of Bucks.," *The Reports of the Society for Bettering the Condition and Increasing the Comforts of the Poor*, in two volumes (London, 1805; 4th ed.), 1:166-174

Bernard, Margaret, "Extract from an account of the Bath repository for the benefit of the poor," *The Reports of the Society for Bettering the Condition and Increasing the Comforts of the Poor*, in two volumes (London, 1805; 4th ed.), 2:314-318

Bickerton, David, and René Sigrist (eds.), *Marc-Auguste Pictet, 1752-1825, Correspondance Sciences et Techniques* in three volumes (Geneva: Slatkine, 2000)

Boyle, Patrick, *The Fashionable Court Guide, or Town Visiting Directory, for the Year 1793* (London: printed for P. Boyle, 1793), British Library, RB.23.a.17986

Boyle, Patrick, *Second Edition of Boyle's Court and Country Guide, and Town Visiting Directory* (London: printed and sold by P. Boyle, 1803), British Library, P.P.2506.sdc

Bozovic, Miran (ed.), *Jeremy Bentham: The Panopticon Writings*, (London: Verso, 1995)

Brande, William Thomas, *An Introductory Discourse, delivered in the amphitheatre of the London Institution on Wednesday the 5th May, 1819* (London, 1819)

Branfill-Cook, Roger, *Torpedo. The Complete History of the World's Most Revolutionary Naval Weapon* (Barnsley: Seaforth Publishing, 2014)

Brougham, Henry, Review of Thomas Young's 1802 Bakerian Lecture "On the Theory of light and Colours," *Edinburgh Review* 1 (January 1803): 450-456

Brougham, Henry, Review of Humphry Davy's 1806 Bakerian Lecture "On some Chemical Agencies of Electricity," *Edinburgh Review* 11 (January 1808): 390-398

Brougham, Henry, *Lives of Men of Letters and Science who Flourished in the Time of George III* in two volumes (London: Charles Knight and Co., 1845)

Brownlow, John, *The History and Objects of the Foundling Hospital: With a Memoir of the Founder* (London: Printed by C. Jaques, 1865; 3rd ed.)

Burke, Edmund, *Reflections on the Revolution in France* (Dublin, 1790; 5th ed.)

Bury, Lady Charlotte Susan Maria, *Diary Illustrative of the Times of George the Fourth, Interspersed with original letters from the late Queen Caroline, and other various distinguished persons* in two volumes (Paris: E. Fourmestraux and Co., 1838; 3rd ed.)

Byron, Lord George Gordon Noel, "Some Recollections of my acquaintance with Madame de Stael," *Murray's Magazine* 1 (January 1887): 4-6

C. C. A., "To detect adulterated vinegar and wine," *The Lady's Magazine; or Entertaining Companion for the Fair Sex* 42 (January 1811): 10-11

Caroe, Gwendy, *The Royal Institution: An Informal History* (London: John Murray Publishers Ltd, 1985)

Chernock, Arianne, *Men and the Making of Modern British Feminism* (Stanford, California: Stanford University Press, 2010)

Child, Elizabeth, "Elizabeth Montagu, Bluestocking Businesswoman," in Nicole Pohl and Betty A. Schellenberg (eds.) *Reconsidering the Bluestockings* (San Marino, California: Huntington Library, 2003): 153-173

Christie, John R. R., "'The Most Perfect Liberty:' Professors and Students in the Age of the Chemical Revolution," in Robert G. W. Anderson (ed.) *Cradle of Chemistry: The Early Years of Chemistry at the University of Edinburgh* (Edinburgh: Birlinn, 2015): 85-98

Coburn, Kathleen (ed.), *The Notebooks of Samuel Taylor Coleridge* in five volumes (London: Routledge and Kegan Paul, 1962)

Colley, Linda, *Britons: Forging the Nation 1707-1837* (New Haven and London: Yale University Press, 2005 (1992))

Congreve, William, *Memoir on the possibility, the means, and the importance, of the destruction of the Boulogne flotilla, in the present crisis, with the outline of a general system for the attack of the enemy's naval depots and arsenals* (London, 1806)

Connell, Brian, *Portrait of a Whig Peer, Compiled from the papers of the Second Viscount Palmerston, 1739-1802* (London: Andre Deutsch, 1957)

Cooter, Roger and Stephen Pumfrey, "Separate Spheres and Public Places: Reflections on the History of Science Popularization and Science in Popular Culture," *History of Science* 32 (1994): 237-268

Cowley, Hannah, extract of *The Siege of Acre* (1801), published as "The Female Warrior" in *The Lady's Magazine; or Entertaining Companion for the Fair Sex* 42, (May 1811): 232

Crosland, Maurice, "Lavoisier, The Two French Revolutions and 'the Imperial Despotism of Oxygen'" *Ambix* 42 (1995): 101-118

Cunningham, Andrew and Nicholas Jardine (eds.), *Romanticism and the Sciences* (Cambridge: Cambridge University Press, 1990)

Cutler, Janet C., *The London Institution 1805-1933* (University of Leicester Ph.D. thesis, 1976)

Davy, Humphry, *A Discourse, Introductory to a Course of Lectures on Chemistry delivered in the theatre of the Royal Institution, on the 21st of January, 1802* (London: Press of the Royal Institution of Great Britain, Albemarle Street, W. Savage, 1802)

Davy, Humphry, "The Parallels Between Art and Science," *The Director* 2 (30 May 1807): 193-198.

Davy, Humphry, "The Bakerian Lecture: On Some Chemical Agencies of Electricity," *Philosophical Transactions of the Royal Society of London* 97 (1807): 1-56

Davy, Humphry, "A lecture on the plan which it is proposed to adopt for improving the Royal Institution and rendering it permanent, delivered in the theatre of the Royal Institution March 3rd, 1810," (London, 1810)

Davy, Humphry, *Elements of Chemical Philosophy* (London: J. Johnson and Co. St. Paul's Church-yard, 1812)

Davy, Humphry, *Consolations in Travel, or, The Last Days of a Philosopher* (London: John Murray, 1830)

Davy, John, *Memoirs of the Life of Sir Humphry Davy, Bart., LL. D., F.R.S.* in two volumes (London: Longman, 1836)

Davy, John, *The Collected Works of Sir Humphry Davy*, in nine volumes (London: Smith, Elder and Co. Cornhill, 1840)

De Beer, Gavin, *The Sciences Were Never at War* (Edinburgh, London, Melbourne, Johannesburg: Thomas Nelson and Sons Ltd, 1960)

Dibdin, Thomas Frognall, "Royal Institution Lectures," *The Director* 2, (18 April 1807)

Dibdin, Thomas Frognall, "A Walk in London," *The Director* 2 (9 May 1807): 97-114

Dibdin, Thomas Frognall, *Reminiscences of a Literary Life*, in two volumes (London: John Major, 71 Great Russell Street, Bloomsbury, 1836)

Donald, Diana, *The Age of Caricature: Satirical Prints in the Reign of George III* (New Haven and London: Yale University Press, 1996)

Dougherty, Carolyn, "George Stephenson and Nineteenth-Century Engineering Networks," in K.S.B. Keats-Rohan (ed.) *Prosopography Approaches and Applications: A Handbook* (Oxford: Prosopographica et Genealogica, 2007): 555-565

Edgeworth, Maria, *Letters for Literary Ladies. To which is added, an essay on the noble science of self-justification* (London: Joseph Johnson, 1799; 2nd ed.)

Edgeworth, Maria, *Belinda*, in three volumes (London: Joseph Johnson, 1802; 2nd ed.)

Eger, Elizabeth. "Bluestocking circle [bluestockings] (act. c. 1755–c. 1795)." *Oxford Dictionary of National Biography*, accessed 1 July 2018.

<http://www.oxforddnb.com/view/10.1093/ref:odnb/9780198614128.001.0001/odnb-9780198614128-e-63013>

Eger, Elizabeth, "The Bluestocking Circle. Friendship, Patronage and Learning" in Elizabeth Eger and Lucy Peltz (eds.) *Brilliant Women: 18th-Century Bluestockings* (London: National Portrait Gallery, 2008): 20-55

Eger, Elizabeth, "The Bluestocking Legacy" in Elizabeth Eger and Lucy Peltz (eds.) *Brilliant Women: 18th-Century Bluestockings* (London: National Portrait Gallery, 2008): 126-151

Eger, Elizabeth, *Bluestockings. Women of Reason from Enlightenment to Romanticism* (Basingstoke: Palgrave Macmillan, 2010)

Ellis, Grace A. (ed.), *A Memoir of Mrs. Anna Lætitia Barbauld, with many of her letters*, in two volumes (Boston: James R. Osgood and Company, 1874)

Fanshawe, Catherine, "Extract from a letter by Miss Catherine M. Fanshawe," *Murray's Magazine* (January 1887), on 6.

Foote, George A., "Sir Humphry Davy and his audience at the Royal Institution," *Isis* 43 (1952): 6-12

Foreman, Amanda, *Georgiana, Duchess Of Devonshire* (London: Harper Collins, 1999 (1998))

Forgan, Sophie, *The Royal Institution of Great Britain, 1840-1873* (Westfield College PhD thesis, 1976)

Forgan, Sophie (ed.), *Science and the Sons of Genius: Studies on Humphry Davy* (London: Science Reviews Ltd., 1980)

Forgan, Sophie, "'A national treasure trove of a unique kind' (W. L. Bragg): some reflections on two hundred years of institutional history" in Frank A. J. L. James (ed.), *'The Common Purposes of Life': Science and Society at the Royal Institution of Great Britain* (Aldershot: Ashgate, 2002): 17-42

Forster, Lavinia, "Banks's Statue of Achilles," *The Director* 1 (7 February 1807): 65-78

Foss, Brian Frederick, *British Artists and the Second World War, with Particular Reference to the War Artists' Advisory Committee of the Ministry of Information* (University College London PhD Thesis, 1991)

Fullmer, June Z., "Humphry Davy's Adversaries," *Chymia* 8 (1962): 147-164

Fullmer, June Z., *Young Humphry Davy. The Makings of an Experimental Chemist* (Philadelphia: American Philosophical Society, 2000)

Fulton, Robert, *Torpedo War, and Submarine Explosions* (New York, 1810)

Garnett, Thomas, *Observations on a Tour of the Highlands and Part of the Western Isles of Scotland, Particularly Staffa and Icolmkill, to which are added, a description of the falls of the Clyde, of the Country round Moffat, and an analysis of its mineral waters* in two volumes (London: T Cadell junior and W Davies, the Strand, 1800)

Gell, E. M., *John Franklin's Bride: Eleanor Anne Porden* (London: John Murray, 1930)

Gilbert, Mary Ann, "Results of some Experiments on a System of small Allotments and Spade Husbandry" in *Report of the Eleventh Meeting of the British Association for the Advancement of Science: Held at Plymouth in July 1841* (London, 1842), on page 98

Gilbert, Mary Ann, "On the Advantages arising from Spade Husbandry and Agricultural Education" in *Report of the Twelfth Meeting of the British Association*

for the Advancement of Science: Held at Manchester in June 1842 (London, 1843), on page 99

Golinski, Jan, *Science as Public Culture: Chemistry and Enlightenment in Britain, 1760-1820* (Cambridge: Cambridge University Press, 1999 (1992))

Golinski, Jan, "Humphry Davy's Sexual Chemistry," *Configurations* 7 (1999): 15-41

Golinski, Jan, *The Experimental Self: Humphry Davy and the Making of a Man of Science* (Chicago and London: University of Chicago Press, 2016)

Goodden, Angelica, *Madame de Staël: The Dangerous Exile* (Oxford: Oxford University Press, 2008)

Gordin, Michael D., "The Importation of Being Earnest: The Early St. Petersburg Academy of Sciences," *Isis* 91 (2000): 1-31

Gurwood, John (ed.), *The Dispatches of Field Marshall the Duke of Wellington*, in eight volumes (Cambridge: Cambridge University Press, 2010)

Halévy, Elie, E. I. Watkin and D. A. Barker (trans.) *History of the English People in the Nineteenth Century*, in six volumes (New York: Barnes and Noble Inc., 1961)

Haslett, Moyra, "Bluestocking Feminism revisited: the satirical figure of the bluestocking," *Women's Writing* 17 (2010): 432-451

Haydon, Benjamin Robert, "Autobiography of Benjamin Robert Haydon" in Tom Taylor (ed.) *Life of Benjamin Robert Haydon, Historical Painter, from His Autobiography and Journals*, in three volumes (London, 1853)

Hays, J. N., "The London lecturing empire, 1800-50," in Ian Inkster and Jack Morrell, (eds.) *Metropolis and Province: Science in British Culture, 1780-1850* (Philadelphia: University of Pennsylvania Press, 1983): 91 – 119

Higgins, Sophia Elizabeth, *The Bernards of Abington and Nether Winchendon: A Family History* in four volumes (London: Longmans and Co., 1903-4)

Higgitt, Rebekah and Charles W. J. Withers, "Science and Sociability: Women as Audience at the British Association for the Advancement of Science, 1831-1901," *Isis* 99 (2008): 1-27

Hippisley, John Coxe and Richard Sullivan, *The Prospectus, Charter, Ordinances and Bye-Laws, of the Royal Institution of Great Britain. Together with Lists of the Proprietors and Subscribers: and an Appendix* (London, 1800)

Hippisley, John Coxe and Richard Sullivan, "Prospectus of the Royal Institution of Great Britain," *Bombay Courier*, 16 March 1805, 3b-4c

Horner, Leonard (ed.), *Memoirs of Francis Horner, with selections from his correspondence* (Edinburgh: William and Robert Chambers, 1849)

Horrocks, Sally, *Audiences for Chemistry in Regency Britain: Mrs Marcet's Conversations on Chemistry* (University of Cambridge undergraduate dissertation, 1987)

Hunter, Michael, *The Royal Society and its Fellows 1600-1700: the morphology of an early scientific institution* (Oxford: Alden Press, BSHS Monographs, 1994; 2nd ed.)

Ilchester, Earl of, (ed.) *The Journal of Elizabeth Lady Holland* in two volumes (London, New York, Bombay and Calcutta: Longmans, Green, and Co., 1908)

Jacob, Margaret C. and Dorothée Strukenboom, "A Women's Scientific Society in the West: The Late Eighteenth Century Assimilation of Science," *Isis* 94 (2003): 217-252

James, Frank A. J. L. (ed.), *The Correspondence of Michael Faraday* in six volumes (London: Institution of Electrical Engineers, 1991-2011)

James, Frank A. J. L., "Davy in the Dockyard: Humphry Davy, the Royal Society and the Electro-Chemical Protection of His Majesty's Ships in the Mid 1820s," *Physis* 29 (1992): 205-225

James, Frank A. J. L., "Introduction" in Frank A. J. L. James (ed.) *The Common Purposes of Life: Science and Society at the Royal Institution* (Aldershot: Ashgate, 2002): 1-16

James, Frank A. J. L. and Anthony Peers, "Constructing Space for Science at the Royal Institution of Great Britain," *Physics in Perspective* 9 (2007): 130-185

James, Frank A. J. L., "'Agricultural Chymistry is at present in its infancy': The Board of Agriculture, The Royal Institution, and Humphry Davy," *Ambix* 62 (2015):363-385

James, Frank A. J. L., "'the first example...of an extensive scheme of pure scientific medical investigation': Thomas Beddoes and the Medical Pneumatic Institution in Bristol, 1794 to 1799," The Eighth Wheeler Lecture given at the Royal Institution, 12 October 2015, published as The Royal Society of Chemistry Historical Group Occasional Paper No. 8 (November 2016), series editor Dr Anna Simmons

James, Frank A. J. L., "The Subversive Humphry Davy: Aristocracy and Establishing Chemical Research Laboratories in Late Eighteenth- and Early Nineteenth-Century England," in Lisa Roberts and Simon Werrett (eds.) *Compound Histories: Materials, Governance and Production, 1760-1840* (Leiden: Brill, 2018): 269-88

James, Frank A. J. L., "Negative Geology: Humphry Davy and forming the Royal Institution's Mineralogical Collection, 1803-1806," *Earth Sciences History* 37 (2018), forthcoming

Jennings, James, *A Lecture on the History and Utility of Literary Institutions, delivered at the Surrey Institution, London, on Friday, November 1st and again at the Russell Institution on Thursday, December 20th, 1822* (London: Printed for Sherwood Jones and Co., 1823)

Johnson, Samuel, *The Rambler*, 173, 12 November 1751

Johns-Putra, Adeline, *Heroes and Housewives. Women's Epic Poetry and Domestic Ideology in the Romantic Age (1770-1835)* (Bern: Peter Lang AG, European Academic Publications, 2001)

Johns-Putra, Adeline, "'Blending Science with Literature:' The Royal Institution, Eleanor Anne Porden and the Veils," *Nineteenth-Century Contexts* 33 (2011): 35-52

Johnston, Kenneth R., *Unusual Suspects: Pitt's Reign of Alarm and the Lost Generation of the 1790s* (Oxford: Oxford University Press, 2013)

Jones, Peter M., *Industrial Enlightenment: Science, technology and culture in Birmingham and the West Midlands, 1760-1820* (Manchester and New York: Manchester University Press, 2008)

Kelly, Gary, "General Introduction" in Gary Kelly (ed.) *Bluestocking Feminism. Writings of the Bluestocking Circle, 1738-1785* in six volumes (London: Pickering and Chatto, 1999) 1:ix-liv

Kendall, James, *Humphry Davy: 'Pilot' of Penzance* (London: Faber and Faber, 1954)

Kennedy, Catriona, "John Bull into Battle: Military Masculinity and the British Army Officer during the Napoleonic Wars," in Karen Hagemann, Gisela Mettele and Jane Rendall (eds.) *Gender, War and Politics Transatlantic Perspectives, 1775-1830* (Basingstoke: Palgrave Macmillan, 2010): 127-146

Kennedy, Catriona, *Narratives of the Revolutionary and Napoleonic Wars: Military and Civilian Experience in Britain and Ireland* (Basingstoke: Palgrave Macmillan, 2013)

Kirkpatrick, Kathryn J., "Introduction," in Kathryn J. Kirkpatrick (ed.) *Maria Edgeworth: Belinda* (Oxford: Oxford University Press, 1994): ix-xxv

Klancher, Jon, *Transfiguring the Arts and Sciences: Knowledge and Cultural Institutions in the Romantic Age* (Cambridge: Cambridge University Press, 2013)

Knight, David, *Humphry Davy: Science and Power* (Cambridge: Cambridge University Press, 2006 (1992))

Knight, David, "Establishing the Royal Institution: Rumford, Banks and Davy" in Frank A.J.L. James (ed.) *The Common Purposes of Life: Science and Society at the Royal Institution* (Aldershot, Ashgate, 2002): 97-118

Koepp, Cynthia J., "The Alphabetical Order: Work in Diderot's *Encyclopédie*" in Stephen Laurence Kaplan and Cynthia J. Koepp (eds.) *Work in France: Representations, Meaning, Organization, and Practice* (Ithaca and London: Cornell University Press, 1986): 229-257

Kurzer, Frederick, "A History of the Surrey Institution," *Annals of Science* 57 (2000): 109-141

Lamont-Brown, Raymond, *Humphry Davy: Life Beyond the Lamp* (Stroud: Sutton Publishing Limited, 2004)

Leach, Camilla, "Religion and Rationality: Quaker Women and Scientific Education," *History of Education* 35 (2006): 69-90

Lehman, Christine, "Between Commerce and Philanthropy: Chemistry Courses in Eighteenth Century Paris" in Bernadette Bensaude-Vincent and Christine Blondel (eds.) *Science and Spectacle in the European Enlightenment* (Aldershot: Ashgate, 2008): 103-116

Leigh, G. Jeffery and Alan J. Rocke, "Women and Chemistry in Regency England: New Light on the Marcet Circle," *Ambix* 63 (2016): 28-45

Levere, Trevor H., *Poetry Realized in Nature* (Cambridge: Cambridge University Press, 1981)

Lewis, Lady Theresa, *Extracts of the Journals and Correspondence of Miss Berry, from the year 1783-1852*, in three volumes (London: Longmans, Green, and Co., 1865)

Lloyd, Sarah, *Charity and poverty in England, c. 1680-1820: wild and visionary schemes* (Manchester: Manchester University Press, 2009)

Lockhart, John Gibson (ed.), *Memoirs of the Life of Sir Walter Scott, Bart.* (Edinburgh: Robert Cadell, 1845)

Lyell, Katharine M. (ed.), *Memoir of Leonard Horner, F.R.S., F.G.S., Consisting of Letters to his Family and some of his Friends* in two volumes (London: Women's Printing Society, 1890)

MacDonald, J. Marc, *Crossroads of Enlightenment 1685-1850: Exploring Education, Science, and Industry Across the Delessert Network* (University of Saskatchewan PhD thesis, 2015)

Macleod, Emma V., "'Thinking Minds of both Sexes': Patriotism, British Bluestockings and the Wars against Revolutionary America and France, 1775-1802," in Karen Hagemann, Gisela Mettele and Jane Rendall (eds.) *Gender, War and Politics Transatlantic Perspectives, 1775-1830* (Basingstoke: Palgrave Macmillan, 2010): 247-264

Maerker, Anna, "Political Order and the Ambivalence of Expertise: Count Rumford and Welfare-Reform in Late Eighteenth Century Munich," *Osiris* 25 (2010): 213-230

Marcet, Jane, *Conversations on Chemistry, in which the elements of that science are familiarly explained and illustrated by experiments*, in two volumes (London: Longman, Hurst, Rees, and Orme, 1806)

Matron of the Foundling, "Extract from an account of the kitchen, fitted up at the Foundling, under the direction of Count Rumford," *The Reports of the Society for Bettering the Condition and Increasing the Comforts of the Poor*, in two volumes (London, 1805; 4th ed.), 1:108-117

McCann, Alison, "A private laboratory at Petworth House, Sussex, in the late eighteenth century," *Annals of Science* 40 (1983): 635-655

Merchant, Carolyn, *The Death of Nature. Women, Ecology and the Scientific Revolution* (San Francisco: Harper & Row, 1980)

Miller, David, "Between Hostile Camps: Sir Humphry Davy's Presidency of the Royal Society of London, 1820-1827," *British Journal for the History of Science* 16 (1983): 1-47

Minto, Nina (ed.), *Life and Letters of Sir Gilbert Elliot, First Earl of Minto, from 1751 to 1806, when his public life in Europe was closed by his appointment to the Vice-Royalty of India* in three volumes (London: Longmans, Green and Co., 1874)

Moers, Ellen, *The Dandy* (London: Secker and Warburg, 1960)

Moore, Thomas, *M.P., or, the Blue-Stocking*, a comic opera, in three acts, First Performed at the English Opera, Theatre Royal, Lyceum, On Monday September 9, 1811. (London: Printed by W. Clowes, Northumberland Court, For J. Power, 34 Strand, 1811)

Mrs Fiske, "Mrs Fiske has the honour of announcing to the Nobility and Ladies in general," *Morning Post*, 1 May 1807, 1c

Myers, Sylvia Harcstark, *The Bluestocking Circle. Women, Friendship, and the Life of the Mind in Eighteenth-Century England* (Oxford: Clarendon Press, 1990)

Opie, Amelia, *Detraction Displayed* (London and Norwich: Longman, Rees, Orme, Brown, and Green, and S. Wilkin, 1828)

Pancaldi, Giuliano, *Volta: Science and Culture in the Age of Enlightenment* (Princeton and Oxford: Princeton University Press, 2003)

Paris, John Ayrton, *The Life of Sir Humphry Davy, Bart.* (London: Henry Colburn and Richard Bentley New Burlington Street, 1831)

Paris, Michael, *Warrior Nation. Images of War in British Popular Culture, 1850-2000* (London: Reaktion Books, 2000)

Paskins, Matthew, *Sentimental Industry: the Society of Arts and the Encouragement of Public Useful Knowledge, 1754-1848* (University College London PhD thesis, 2014)

Peltz, Lucy, "Living Muses. Constructing and Celebrating the Professional Woman in Literature and the Arts" in Elizabeth Eger and Lucy Peltz (eds.) *Brilliant Women: 18th-Century Bluestockings* (London: National Portrait Gallery, 2008): 56-93

Peplow, Mark, "Elements of Romance," *Nature* 493 (2013), 606

Pohl, Nicole and Betty A. Schellenberg, "Introduction. A Bluestocking Historiography," in Nicole Pohl and Betty A. Schellenberg (eds.) *Reconsidering the Bluestockings* (San Marino, California: Huntington Library, 2003): 1-19

Polkinghorn, Bette, *Jane Marcet: An Uncommon Woman*, (Aldermaston: Forestwood Publications, 1993)

Porden, Eleanor Anne, *The Veils, or The Triumph of Constancy, a Poem, in six books* (London: John Murray, 1815)

Porter, Roy, *London: A Social History* (London: Penguin, 2000)

Priestley, Joseph, "Observations on Different Kinds of Air," *Philosophical Transactions* 62 (1772): 147-264

Priestman, Martin, *The Poetry of Erasmus Darwin* (Farnham: Ashgate, 2013)

Prospectus of the Royal Institution of Great Britain, incorporated by Charter MDCCC (London, 1800), 34. From copy held at the British Library, tracts 727

Rayner-Canham, Marelene and Geoff Rayner-Canham, *Women In Chemistry: Their changing roles from alchemical times to the mid-twentieth century* (Philadelphia: Chemical Heritage Foundation, 1998)

Rayner-Canham, Marelene and Geoff Rayner-Canham, "British women and chemistry from the 16th to the mid-19th century," *Bulletin of the History of Chemistry* 34 (2009): 117-123

Rayner-Canham, Marlene and Geoff Rayner-Canham, *A Chemical Passion: the forgotten story of chemistry at British independent girls' schools, 1820s-1930s* (London: UCL Institute of Education Press, 2017)

Reid, William Hamilton, *The rise and dissolution of infidel societies in this metropolis* (London, 1800)

Rendall, Jane, "Women Writing War and Empire: Gender, Poetry and Politics in Britain during the Napoleonic Wars," in Karen Hagemann, Gisela Mettele and Jane Rendall (eds.) *Gender, War and Politics Transatlantic Perspectives, 1775-1830* (Basingstoke: Palgrave Macmillan, 2010): 265-283

Rhodes, Ebenezer, *Peak Scenery; Or, The Derbyshire Tourist* (London: Longman, Hurst, Rees, Orme, Brown and Green, 1824)

Roberts, Lissa, "Chemistry on Stage: G. F. Rouelle and the Theatricality of Eighteenth Century Chemistry" in Bernadette Bensaude-Vincent and Christine Blondel (eds.) *Science and Spectacle in the European Enlightenment* (Aldershot: Ashgate, 2008): 129-139

Rumford, Count Benjamin Thompson, *Count Rumford's Experimental essays, political, economical and philosophical. Essay II. Of the Fundamental Principles on which general establishments for the relief of the poor, may be formed in all countries* (Dublin: printed by W. Porter, J. Archer, 1796; 3rd ed.)

Rumford, Count Benjamin Thompson, *Count Rumford's Experimental essays, political, economical and philosophical. Essay III. Of food, and particularly of feeding the poor* (Dublin: printed by W. Porter, J. Archer, 1796; 3rd ed.)

Rumford, Count Benjamin Thompson, "Report, delivered before a Meeting of the Managers on 25 May 1801," *Journals of the Royal Institution*, Numbers 2 and 3, 13th June 1801 (London, 1801): 17-28

Ruston, Sharon, "From 'The Life of the Spinosist' to 'Life': Humphry Davy, Chemist and Poet," in Margareth Hagen and Margery Vibe Skagen (eds.) *Literature and Chemistry: Elective Affinities* (Aarhus: Aarhus University Press, 2013): 77-97

Schaffer, Simon, "Natural Philosophy and Public Spectacle in the Eighteenth Century", *History of Science* 21 (1983): 1-43

Schaffer, Simon, "Enlightened Automata," in William Clark, Jan Golinski, and Simon Schaffer (eds.) *The Sciences in Enlightened Europe* (Chicago and London: The University of Chicago Press, 1999): 126-165

Schiebinger, Londa, *The Mind Has No Sex? Women in the Origins of Modern Science* (London and Cambridge, Massachusetts: Harvard University Press, 1989)

Serrano, Elena, "Chemistry in the city: the scientific role of female societies in late-eighteenth century Madrid," *Ambix* 60 (2013): 139-159

Shapin, Steven and Arnold Thackray, "Prosopography as a research tool in history of science: The British scientific community, 1700-1900," *History of Science* 12 (1974): 1-28

Shelley, Mary Wollstonecraft, *Frankenstein: or, the Modern Prometheus* (London: Lackington, Hughes, Harding, etc., 1818)

Shteir, Ann B., *Cultivating Women, Cultivating Science: Flora's Daughters and Botany in England 1760 to 1860* (Baltimore and London: Johns Hopkins University Press, 1996)

Shteir, Ann B., "Green-Stocking or Blue? Science in Three Women's Magazines, 1800-50," in Louise Henson, Geoffrey Cantor, Gowan Dawson, Richard Nokes, Sally Shuttleworth, and Jonathan R. Topham (eds.) *Culture and Science in the Nineteenth-Century Media* (Aldershot: Ashgate, 2004): 3-13

Siegfried, Robert, "Davy's 'Intellectual Delight' and his Lectures at the Royal Institution," in Sophie Forgan (ed.) *Science and the Sons of Genius Studies on Humphry Davy* (London: Science Reviews Ltd., 1980): 177-200

Silliman, Benjamin, *A Journal of Travels in England, Holland, and Scotland, and of Two Passages over the Atlantic in the Years 1805 and 1806*, in two volumes (Newhaven: Howe and Deforest, and Increase Cook and co., 1812; 2nd ed.)

Simond, Louis, *Journal of a Tour and Residence in Great Britain, During the Years 1810 and 1811*, in two volumes (Edinburgh and London: Archibald Constable and Company, Edinburgh; and Longman, Hurst, Rees, Orme, and Brown, 1817; 2nd ed.)

Slagle, Judith Bailey (ed.), *Collected Letters of Joanna Baillie* in two volumes (Madison: Fairleigh Dickinson University Press and London: Associated University Presses, 1999)

Smith, Sydney, "Female Education," in his review of *Advice to Young Ladies on the Improvement of the Mind* by Thomas Broadhurst, *Edinburgh Review* 15 (January 1810): 299-315

Somerville, Martha (ed.), *Personal Recollections from early life to old age of Mary Somerville, with selections from her correspondence* (London: John Murray, 1873)

Southey, Robert, *Letters from England by Don Manuel Alvarez Espriella* in three volumes (London: Longman, Hurst, Rees and Orme, 1807)

Sparrow, W. J., *Knight of the White Eagle. A Biography of Sir Benjamin Thompson, Count Rumford (1753-1814)* (London: Hutchinson and Co., 1964)

St Clair, William, *The Reading Nation in the Romantic Period* (Cambridge: Cambridge University Press, 2004)

Taylor, Frank Sherwood, *An Illustrated History of Science* (London: William Heinemann, 1955)

The archives of the Royal Institution of Great Britain in facsimile: Minutes of the Managers' Meetings, 1799-1903, fifteen volumes in seven (London: Scolar Press, 1971-1976)

The Charter and Bye-Laws of the Royal Institution of Great Britain; together with a list of the Proprietors and Subscribers (London: Printed by Savage and Easingwood, Bedford Bury, Printers to the Royal Institution, 1806) Copy held at the British Library, Tracts 676

Thorne, Ronald, "Hippisley, Sir John Coxe, first baronet, 1745/6-1825," *Oxford Dictionary of National Biography* (published online 23 September 2004)

Treener, Anne, *The Mercurial Chemist: A Life of Sir Humphry Davy* (London: Methuen & Co., 1963),

Usselman, Melvyn C., *Pure Intelligence: The Life of William Hyde Wollaston* (Chicago and London: University of Chicago Press, 2015)

Verboven, Koenraad, Myriam Cralier and Jan Dumolyn, "Short Manual to the Art of Prosopography," in K.S.B. Keats-Rohan (ed.), *Prosopography Approaches and Applications: A Handbook* (Oxford: Prosopographica et Genealogica, 2007): 35-69

Vickery, Amanda, "Golden Age to Separate Spheres? A Review of the Categories and Chronology of English Women's History," *The Historical Journal* 36 (1993): 383-414

Weindling, Paul, "Science and sedition: how effective were the acts licensing lectures and meetings, 1795-1819?," *British Journal for the History of Science* 13 (1980): 139-153

Weiss, Deborah, *The Female Philosopher and her Afterlives: Mary Wollstonecraft, the British Novel, and the Transformation of Feminism, 1796-1811* (London: Palgrave Macmillan, 2017)

Werrett, Simon, "William Congreve's rational rockets," *Notes and Records of the Royal Society* 63 (2009): 35-56

Werrett, Simon, *Fireworks: Pyrotechnic Arts and Sciences in European History* (Chicago and London: University of Chicago Press, 2010)

Woolf, Virginia, *Orlando* (New York: Harcourt, Brace and Co., 1928)

Wright, S. J., *Bretton, The Beaumonts and a Bureaucracy. A West Yorkshire Estate in the Eighteenth and Nineteenth Centuries* (Wakefield: Wakefield Historical Publications, 2001)

Zimmerman, Sarah M., "Romantic women writers in the lecture room," in Robert Demaria, Jr., Heesok Chang and Samantha Zacher (eds.) *Companion to British Literature, Volume III: Long Eighteenth-Century Literature 1660–1837* (Chichester: Wiley Blackwell, 2014): 380-395

Appendix

Sources used in Appendix:

Archives of the Royal Institution of Great Britain

“Alphabetical list of Ladies Subscribers to the Royal Institution of Great Britain, May 1, 1800,” in *The Prospectus, Charter, Ordinances and Bye-Laws, of the Royal Institution of Great Britain. Together with Lists of the Proprietors and Subscribers: and an Appendix* (London: Printed by W. Bulmer and Co., 1800), RI/MS/AS/02/A/01/A, box 261

Annual Subscriptions 1805-1824, shelf D2e

Ledger of Receipts for the Year 1812, RI MS AD/04/A/03

The Minutes of the Managers’ meetings, RI MS AD/02/B/02/A. Cited as RI MM followed by date of meeting, volume and page number

Additional sources

Adeane, Jane H. (ed.), *The Early Married Life of Maria Josepha Stanley, with extracts from Sir John Stanley’s ‘Præterita’* (London, New York and Bombay: Longmans, 1899)

Boyle, Patrick, *Second Edition of Boyle’s Court and Country Guide, and Town Visiting Directory* (London: printed and sold by P. Boyle, 1803), British Library, P.P.2506.sdc

Ellis, Grace A. (ed.), *A Memoir of Mrs. Anna Lætitia Barbauld, with many of her letters*, in two volumes (Boston: James R. Osgood and Company, 1874)

Marcet, Jane, *Conversations on Chemistry, in which the elements of that science are familiarly explained and illustrated by experiments*, in two volumes (London: Longman, Hurst, Rees, and Orme, 1806)

Sparrow, W. J., *Knight of the White Eagle. A Biography of Sir Benjamin Thompson, Count Rumford (1753-1814)* (London: Hutchinson and Co., 1964)

The Charter and Bye-Laws of the Royal Institution of Great Britain; together with a list of the Proprietors and Subscribers (London: 1806). Copy held at the British Library, Tracts 676, Shelf mark B.676.(4.), UIN: BLL01002242950

Appendix

Title	Surname	First Name	Address	Street in <i>Boyle's Court Guide</i> (1803)?	RI MM or other source	<i>RI Ledger of Receipts 1812</i> , vol. 1	<i>Subscriber s 1805</i>	Recommended by?	Subscriber type (if not annual subscriber)
Lady	Abdy		Albemarle Street	yes, p. 14			p. 111		
Miss	Abdy		Albemarle Street	yes, p. 14			p. 111		
Miss	Abdy	C	Albemarle Street	yes, p. 14			p. 111		
Miss	Abdy	H	Albemarle Street	yes, p. 14			p. 111		
Hon. Mrs	Abercromby					p. 10			
Madame	Achard		Great Ormond Street	yes, p. 91	1 February 1802, 2:233		p. 111	Mrs Bernard	
Miss	Achard		Queen Square and Great Ormond Street in 1806	yes, p. 101	1 February 1802, 2:233		p. 111	Mrs Bernard	
Mrs	Adair		Pall Mall	yes, p.92	2 March 1812, 5:277	p. 12	p. 111		
Mrs	Adam					p. 13			
Mrs	Adams		13 St James's Place	yes, p. 114	2 March 1812, 5:278	p. 12			
Mrs	Aldersey		Wimpole Street	yes, p. 123			p. 111		
Miss	Alexander		Lincolns Inn	yes. n. 78	23 March 1812,	n. 12			

			Street, Portman Square						
Mrs	Apreece		16 Berkley Square	yes, p. 20	28 January 1811, 5:178	p. 13			
Miss	Arnold		Devonshire Place	yes, p. 41			p. 111		
Mrs	Atcheson		Ely Place	yes, p. 46	21 March 1800, 2:28			Mrs Bernard	
Miss	Attersol	M	Portland Place	yes, p. 96	24 November 1806, 4:214		p. 111		
Miss	Attersol	C	Portland Place	yes, p. 96	24 November 1806, 4:214		p. 111		
Mrs	Auriol		Park Lane	yes, p. 93	17 March 1800, 2:21	p. 9	p. 111	Mrs Sullivan	Wife or daughter of Proprietor
Miss	Auriol					p. 9			Wife or daughter of Proprietor
Hon. Mrs	Aust		Kensington Square	no	20 February 1804, 3:219		p. 111		
Countess	Aylesford				7 April 1800, 2:51			Viscountess Palmerston	
Mrs	Babington		Aldermanbury	no			p. 111		
Miss	Babington		Aldermanbury	no			p. 111		
Miss	Babington		Palace Yard	yes, p. 92			p. 111		
Miss	Babington		Sloane Street	yes, p. 109			p. 111		
Miss	Bacon		Bloomsbury Square	yes, p. 23			p. 112		
Miss	Bacon		Hackney	no			p. 111		
Miss	Bacon	Charlotte			13 May 1805, 4:73		p. 111		Proprietor Sir George Staunton's

									transferrable ticket
Mrs	Baillie		71 Grosvenor Street	yes, p. 60			p. 112		
Mrs	Bainbridge	John	40 Harley Street	yes, p. 64	4 February 1811, 5:182				
Miss	Baldwin		Brook Street	yes, p. 25			p. 112		
Mrs	Bale		Argyll Street	yes, p. 14			p. 112		
Mrs	Balfour	Henrietta	Curzon Street	yes, p. 40	28 January 1811, 5:177			Her husband, John Balfour, Esq.	Life Subscriber
Mrs	Ball		Scotland Yard	yes, p. 105			p. 112		
Mrs	Barbault	Anna Lætitia			<i>Ellis, A Memoir of Mrs. Anna Lætitia Barbault, 1:226</i>				
Miss	Barclay				30 March 1800, 2:36			Mrs Bernard	
Miss	Barclay		Clapham common	no			p. 112		
Miss	Barclay	E	Clapham common	no			p. 112		
Miss	Barclay	L	Clapham common	no			p. 112		
Miss	Barclay	R	Clapham common	no			p. 112		
Mrs	Barclay		Clapham common	no			p. 112		
Mrs	Barclay		Harley Street	yes, p. 64			p. 112		
Mrs	Barclay		Hay Market	no			p. 112		
Mrs	Baring		43 Clarges St, Piccadilly	yes, p. 35	24 February 1812, 5:274	p. 11			
Miss	Baring		Hill St., Berkley	yes, p. 69			p. 112		

			Square						
Miss	Baring	L	Hill St., Berkley Square	yes, p. 69			p. 112		
Miss	Barker		Tavistock Street, Bedford Square	yes, p. 119			p. 112		
Miss	Barnard	A	Finsbury Square	no			p. 112		
Mrs	Barnardiston		Queen Square, Bloomsbury	yes, p. 101			p. 112		
Miss	Barnardiston		Queen Square, Bloomsbury	yes, p. 101			p. 112		
Hon. Mrs	Barrington		Cavendish Square	yes, p. 30	17 February 1800, 1:130.				Distinguished Patroness
Miss	Barrow	L	Basinghall Street	no			p. 112		
Miss	Barrow	E	Basinghall Street	no			p. 112		
Mrs	Barrow		Charles Street, St James's Square	yes, p. 32		p. 15	p. 112		
Mrs	Barton		25 Cumberland Street	no	4 March 1811, 5:195				
Miss	Baruh Lousada	Abigail	Devonshire Square	no	22 April 1811, 5:211		p. 120	Her uncle, Emanuel Baruh Lousada, Esq.	Life Subscriber
Mrs	Bate		Russell Square	yes, p. 104		p. 13	p. 112		
Miss	Batty	E. F.	Charlotte Street, Portland Place	yes, p. 35		p. 13	p. 112		
Mrs	Bayford		Upper Gower	yes, p. 53			p. 112		

			Street						
Mrs	Beaumont	Diana	Portman Square	yes, p. 97	7 March 1808, 4:322			Her husband, Thomas Richard Beaumont, Esq.	Proprietor
Mrs	Beaumont				7 April 1800, 2:51			Viscountess Palmerston	
Lady	Beaumont		29 Grosvenor Square	yes, p. 59			p. 111		
not given	Beaumont	Sarah	68 Lambs Conduit Street	yes, p. 77	21 January 1811, 5:174				
Miss	Beazley		Whitehall	yes, p. 123			p. 112		
Miss	Benger		Everett street	no		p. 13	p. 112		
Mrs	Bennett				17 March 1800, 2:21			Hon. Mrs Barrington	Wife or daughter of Proprietor
Mrs	Bernard		Old Burlington Street	yes, p. 28			p. 112		
Miss	Bernard		Old Burlington Street	yes, p. 28			p. 112		
Miss	Bernard	Mary Ann	Old Burlington Street	yes, p. 28			p. 112		
Mrs	Bernard		Wimpole Street	yes, p. 123			p. 112		
Lady	Bernard	Margaret	The Foundling	no	17 February 1800, 1:129	p. 9			Distinguishe d Patroness
Miss	Berry	Mary	North Audley Street, Grosvenor Square	yes, p. 88	19 March 1800, 2:26			Duchess of Devonshire	

Countess	Bessborough	Henrietta Ponsonby (Harriet)	Cavendish Square	yes, p. 30	17 February 1800, 1:129		p. 111		Distinguished Patroness
Hon. Mrs	Bessington				17 February 1800, 1:129				
Miss	Birch		Cumberland Street Portman Square	no	18 March 1811, 5:201	p. 15			
Mrs	Birch	Jonathan					p. 112		
Mrs	Blackburn		25 Cavendish Sq	yes, p. 30	3 February 1812, 5:266	p. 11			
Miss	Blackburn		25 Cavendish Sq	yes, p. 30	3 February 1812, 5:266	p. 11			
Miss	Blackburn	D	25 Cavendish Sq	yes, p. 30	3 February 1812, 5:266	p. 11			
Miss	Blades	C	Finsbury Place	no			p. 112		
Miss	Blades	L	Finsbury Place	no			p. 112		
Miss	Blades	E	Finsbury Place	no			p. 113		
Mrs	Blair		Portland Place	yes, p. 96			p. 113		
Miss	Blake		Portugal Street	yes, p. 97	10 March 1800, 2:7		p. 113	Mrs Crewe	
Mrs	Blake		Bedford Row	yes, p. 18			p. 113		
Miss	Blake	1	Bedford Row	yes, p. 18			p. 113		
Miss	Blake	2	Bedford Row	yes, p. 18			p. 113		
Miss	Blunt		Kensington	no			p. 113		
Miss	Blunt		Mortimer Street, Cavendish Square	yes, p. 84			p. 113		
Mrs	Blunt				26 March 1804, 3:237				
Miss	Boddington	Harriet	Clapton	no	2 March 1812, 5:276		p. 113	Her father, Thomas	Life Subscriber

								Boddington, Esq.	
Miss	Boddington		31 Upper Brook St	yes, p. 25	3 February 1812, 5:266	p. 11			
Mrs	Bonar		Broad Street	no	21 January 1811, 5:174	p. 14			
Miss	Bonar		New Broad Street, Broad Street Buildings in 1806	no	4 February 1811, 5:182		p. 113		
Mrs	Bonham	Henry	Portland Place	yes, p. 96			p. 113		
Mrs	Boodle		Lower Brook Street	yes, p. 26			p. 113		
Miss	Boodle		Lower Brook Street	yes, p. 26			p. 113		
Mrs	Booth		Conduit Street	yes, p. 37			p. 113		
Mrs	Bosanquet	Bernard	Montagu Place	yes, p.84	12 January 1812, 5:262	p. 10			
Miss	Bouverie		Dover Street	yes, p. 43			p. 113		
Miss	Boycott				RI/MS/AD/02/A/01/A , box 261, page 68				
Miss	Boyes		Percy Street, Rathbone Place	yes, p. 95			p. 113		
Mrs	Braancamp		12 Curzon Street	yes, p. 40	4 February 1811, 5:182				
Mrs	Bradshaw		Portland Place	yes, p. 96	10 March 1800, 2:7			Mrs Crewe	
Mrs	Bradshaw				7 April 1800, 2:51			Viscountess Palmerston	
Miss	Braithwaite		Grenville Street	yes, p. 58			p. 113		
Mrs	Brent		Old Burlington Street	yes, p. 28			p. 113		
Mrs	Bridges		Upper Wimpole	yes, p.			p. 113		

			Street	124					
Mrs	Bristow		King Street, St James's	yes, p. 76			p. 113		
Mrs	Brooke	Henry	Gower Street	yes, p. 54	16 March 1812, 5:282	p. 12			
Mrs	Brooke		Sambrooke Court, Basinghall Street	no			p. 113		
Lady	Broughton		Wimpole Street and Portman Street, Portman Square in 1806	yes, p. 123	24 February 1800, 1:134		p. 111	Mrs Bernard	
Miss	Brown		59 Berners Street	yes, p. 22	12 January 1812, 5:262	p. 10			
Mrs	Brown		Gower Street	yes, p. 54			p. 113		
Mrs	Browne		Portman Square	yes, p. 97	7 April 1800, 2:51			Viscountess Palmerston	
Mrs	Browne	Hawkins	South Audley Street	yes, p. 112	27 January 1812, 5:264	p. 10	p. 113		
Mrs	Browning		Audley Square	no	21 January 1811, 5:174				
Mrs	Bryan		1 Gloucester Place, Portman Square	yes, p. 52		p. 13			
Miss	Bull		Stratton Street	yes, p. 118			p. 113		
Miss	Burgh				17 March 1800, 2:22			Mrs Sullivan	
Mrs	Burland		Lower Berkley Street	yes, p. 21			p. 113		
Mrs	Burrowes		7 Hereford Street	yes, p. 68	21 January 1811, 5:174	p. 13			

Mrs	Busk		9 Portland Place	yes, p. 96	21 January 1811, 5:174	p. 15			
Mrs	Butts		Chatham Place, Black Friars	no			p. 113		
Miss	Butts		Chatham Place, Black Friars	no			p. 113		
Miss	Butts	F	Chatham Place, Black Friars	no			p. 113		
Miss	Butts	H	Chatham Place, Black Friars	no			p. 113		
Mrs	Byam	Martin			3 March 1800, 1:137			Mrs Sullivan	
Mrs	Cabell		Chapel Street, Lisson Green	no			p. 114		
Miss	Cabell		Chapel Street, Lisson Green	no			p. 114		
Lady	Cahir		Blakes Hotel	no	14 January 1811, 5:171				
Hon. Lady	Calthorpe	Harriet	33 Grosvenor Sqaure	yes, p. 59	24 February 1812, 5:274	p. 12			
Countess	Camden		Arlington Street	yes, p. 15	10 March 1800, 2:7			Countess Spencer	
Lady	Campbell		Wimpole Street	yes, p. 123	17 February 1800,1:129				Distinguishe d Patroness
Miss	Capper		Goodge Street, Tottenham Court Road	no	24 November 1806, 4:214				
Countess	Carhampton				17 February 1800, 1:129				
Countess	Carnarvon		Tenterden Street	yes, p. 110	30 March 1800, 2:36			Viscountess Palmerston	
Lady	Carnegie				3 February 1812, 5:266	p. 11			

Miss	Carnegie				3 February 1812, 5:266	p. 11			
Miss	Carters	Charlotte			27 January 1806, 4:140				
Mrs	Castor		12 Curzon Street	yes, p. 40	4 February 1811, 5:182				
Lady	Cathcart		12 Gloucester Place, Portman Square	yes, p. 52	2 February 1801, 2:131			Viscountess Palmerston	
Mrs	Cazalet		Bedford Square	yes, p. 18			p. 114		
Mrs	Chambers		43 Mortimer Street	yes, p. 84	21 January 1811, 5:174				
Mrs	Chambers		Lincoln's Inn Fields	yes, p. 78			p. 114		
Miss	Chambers		Margaret Street, New Palace Yard	yes, p. 82			p. 114		
Lady	Chambers		Mortimer Street	yes, p. 84		p. 16	p. 113		
Miss	Chambers		Mortimer Street	yes, p. 84		p. 16	p. 113		
Miss	Chambers				17 March 1806, 4:155				
Miss	Chamier		Grosvenor Place	yes, p. 58	23 February 1807, 4:231				Wife or daughter of Proprietor
Mrs	Chaplin	Elizabeth	30 Albermarle Street	yes, p. 14	6 May 1805, 4:67			Inherited the share of Sir Godfrey Webster, Bart.	Proprietor
Countess	Charlemont					p. 14			
Mrs	Chauvet		Kensington Square	no			p. 114		
Mrs	Cheere					p. 15			

Miss	Cheere					p. 15			
Mrs	Chilver		New Burlington Street	yes, p. 29			p. 114		
Miss	Churchill		60 Lower Grosvenor Street	yes, p. 59	25 February 1811, 5:192	p. 13			
Mrs	Clark		Craven Place, Bayswater	no			p. 114		
Miss	Clarke		13 Albermarle Street	yes, p. 14	11 February 1811, 5:184				
Miss	Clarke		3 Kenton Street	no	12 January 1812, 5:262	p. 10			
Mrs	Clarke		Caroline Place	yes, p. 30			p. 114		
Mrs	Clarke	Anthony	Caroline Place	yes, p. 30			p. 114		
Mrs	Cleaver		Bruton Street	yes, p. 27	2 March 1812, 5:278	p. 12			
Miss	Cleaver		Bruton Street	yes, p. 27	9 March 1812, 5:280	p. 12			
Miss	Cleaver	Catherine	Bruton Street	yes, p. 27	9 March 1812, 5:280	p. 12			
Mrs	Clerk		Upper Seymour Street	yes, p. 107	10 February 1812, 5:269	p. 11			
Miss	Clerk		Upper Seymour Street	yes, p. 107	10 February 1812, 5:269	p. 11			
Miss	Clerk	Marianne	Upper Seymour Street	yes, p. 107	10 February 1812, 5:269	p. 11			
Miss	Clerk					p. 13			
Countess	Clermont				17 February 1800, 1:129				
Mrs	Cline		2 Lincoln's Inn Fields	yes, p. 78			p. 114		
Miss	Cline		2 Lincoln's Inn Fields	yes, p. 78			p. 114		
Lady	Clinton	Louisa Dorothea			<i>Adeane, Early married life of Maria</i>				Thomas Pelham's

					<i>Josepha Stanley, 189 and 196</i>				ticket
Mrs	Cobb		Guilford Street	yes, p. 61			p. 114		
Miss	Cockerell		Westbourne House, Paddington	no			p. 114		
Miss	Cocks					p. 15			
Miss	Codrington		51 Davies Street	yes, p. 41	10 March 1800, 2:7 and 31 December 1804, 3:365			Hon. Mrs Barrington	
Miss	Cole		23 Bloomsbury Square	yes, p. 23	25 February 1811, 5:192				
Mrs	Collingridge	S			20 May 1805, 4:77				
Mrs	Coltman		Vauxhall	no			p. 114		
Right Hon. Lady	Compton	Frances			17 March 1800, 2:22			Mrs Sullivan	
Mrs	Constant		Great Ormond Street	yes, p. 91			p. 114		
Miss	Cooke		North Row, Park Lane	no			p. 114		
Mrs	Coombe		Great Russell Street	yes, p. 104			p. 114		
Miss	Coombe	F	Great Russell Street	yes, p. 104			p. 114		
Mrs	Copland		St Martin's Lane	yes, p. 116			p. 114		
Mrs	Cox		3 John Street, Bedford Row	yes, p. 73			p. 114		
Miss	Cox		3 John Street, Bedford Row	yes, p. 73			p. 114		
Miss	Coxe	A	11 John Street, Berkeley Square	yes, p. 73			p. 114		

Mrs	Cramer		Elizabeth Street, Brompton	no			p. 114		
Miss	Craufurd	Margaret	George Street Hannover Square	yes, p. 51	6 May 1811, 5:217				
Lady	Craufurd				18 February 1811, 5:187				
Miss	Craufurd				18 February 1811, 5:187				
Right Hon. Lady	Crewe	Frances Anne	Lower Grosvenor Street	yes, p. 59	3 March 1800, 1:137 and 17 January 1803, 3:74.	p. 16	p. 113	Mrs Bernard	Distinguished Patroness from 17 January 1803
Miss	Crewe				3 March 1800, 1:137			Mrs Bernard	
Miss	Crisp		Dulwich	no			p. 114		
Mrs	Croft		Old Burlington Street	yes, p. 28			p. 114		
Miss	Crooke		Gower Street	yes, p. 54			p. 114		
Mrs	Cullen		Lambs Conduit Place	yes, p. 77	14 January 1811, 5:171	p. 14			
Miss	Cullen		Lambs Conduit Place	yes, p. 77	14 January 1811, 5:171				
Lady	Cunliffe		New Norfolk Street	yes, p. 87	10 March 1800, 2:7			Mrs Sullivan	
Mrs	Curling		Cleveland Row, St James's	yes, p. 36			p. 114		
Miss	Curling		Cleveland Row, St James's	yes, p. 36			p. 114		
Miss	Curling	E	Cleveland Row, St James's	yes, p. 36			p. 114		
Miss	Currie		Gloucester Place	yes, p. 52			p. 115		

Miss	Curties	Charlotte	Grafton Street, Fitzroy Square	yes, p. 55	17 February 1806, 4:147		p. 115			
Hon. Mrs	Damer		Upper Brook Street	yes, p. 25	29 April 1811, 5:214					
Countess	Damley						p. 16			
Mrs	Dampier						p. 14		Wife or daughter of Proprietor	
Mrs	Dance		Manchester Street, Manchester Square	yes, p. 81			p.9	p. 115	Wife or daughter of Proprietor	
Miss	Dance		Manchester Street, Manchester Square	yes, p. 81			p.9	p. 115		
Countess	Darnley		Berkley Square	yes, p. 20				p. 115		
Countess	Dartmouth		Berkley Square	yes, p. 20				p. 115		
Miss	Darwin		Sloane Street	yes, p. 109	6 April 1812, 5:287		p. 12			
Miss	Dashwood				17 March 1800, 2:22				Mrs Sullivan	
Mrs	Davenport						p. 15			
Mrs	Davies		15 New Bond Street	yes, p. 24	11 May 1801, 2:173				Duchess of Devonshire	
Mrs	Davies				16 December 1805, 4:123					
Lady	Davis	Frances	Albemarle Street	yes, p. 14	25 February 1811, 5:192			p. 115	Her husband, Sir John Brewer Davis	Life Subscriber
Mrs	Davis		Grosvenor Square	yes, p. 59	18 March 1811, 5:200					
Miss	Davis		Grosvenor	yes, p. 59	18 March 1811,					

			Square		5:200				
Mrs	Davis		Lower Gower Street	yes, p. 24			p. 115		
Mrs	Day	Susannah	Montagu Street	yes, p.84	1 February 1808, 4:312			Inherited the share of William Day	Proprietor
Miss	Day		Keppel Street, Russell Square	yes, p. 74			p. 115		
Baroness	de Robeck				22 April 1805, 4:62				
Countess	de Salis				9 March 1812, 5:280	p. 12			
Miss	de Visme		Gloucester Street, Portman Square	yes, p. 53			p. 125		
Miss	Dehany	Mary Salter	Upper Seymour Street	yes, p. 107	7 July 1806, 4:199			Inherited the share of Hooper Holder	Proprietor
Mrs	Devis		Devonshire Place	yes, p. 41			p. 115		
Miss	Devis	Ellin	Devonshire Place	yes, p. 41	15 April 1805, 4:58		p. 115		
Mrs	Devon		Red Lion Square	yes, p. 102			p. 115		
Miss	Devon		Red Lion Square	yes, p. 102			p. 115		
Duchess	Devonshire	Georgiana	Piccadilly	yes, p. 96	17 February 1800, 1:130				Distinguished Patroness
Mrs	Dick		Hertford Street, May Fair	yes, p. 68			p. 115		
Mrs	Dickinson		49 Welbeck Street	yes, p. 121	4 March 1811, 5:195				
Miss	Dinwiddie		11 Caroline Street	yes, p. 30	3 February 1812, 5:266	p. 11			

Miss	Dods	G	Cumming Street, Pentonville	no			p. 115		
Miss	Dods	M	Cumming Street, Pentonville	no			p. 115		
Mrs	Domville					p. 14			
Lady	Drake		New Street, Spring Gardens	yes, p. 85			p. 115		
Miss	Drummond		Spring Garden	yes, p. 113	17 March 1800, 2:21			Viscountess Palmerston	
Mrs	Drummond	Delap				p. 15			
Lady	Drummond Smith		Piccadilly	yes, p. 96	RI/MS/AD/02/A/01/A , box 261, page 70		p. 123		Life Subscriber
Mrs	Drury		Queen Ann Street West	yes, p. 100			p. 115		
Miss	Duckworth		Bloomsbury Square	yes, p. 23			p. 115		
Miss	Duckworth	A	Bloomsbury Square	yes, p. 23			p. 115		
Miss	Dumergue		White Horse Street, Piccadilly	no			p. 115		
Hon. Miss	Dundas		19 Arlington Street	yes, p. 15			p. 115		
Hon. Miss	Dundas	Isabella	19 Arlington Street	yes, p. 15	11 February 1811, 5:184		p. 115		
Hon. Miss	Dundas	Mary	19 Arlington Street	yes, p. 15			p. 115		
Mrs	Dyer		Doughty Street	yes, p. 43			p. 115		
Miss	Dyer		Doughty Street	yes, p. 43		p. 13	p. 115		
Miss	Eastabrook		Westham	no			p. 115		
Mrs	Edwards		Pall Mall	yes, p.92			p. 115		

Mrs	Edwards		Wimpole Street	yes, p. 123			p. 115		
Miss	Edwards		Wimpole Street	yes, p. 123			p. 115		
Mrs	Egerton		Devonshire Place, then Grafton Street	yes, p. 41 and p. 55	24 February 1800, 1:134	p. 15	p. 116	Mrs Bernard	
Hon. Miss	Elphinstone		Harley Street	yes, p. 64			p. 115		
Mrs	Enderly		Blackheath	no			p. 116		
Lady	Ennismore		14 Upper Wimpole Street	yes, p. 124	13 April 1812, 5:289	p. 16			
Miss	Essex		London Street, Fitzroy Square	no			p. 116		
Miss	Essex	C	London Street, Fitzroy Square	no			p. 116		
Miss	Este				17 March 1800, 2:21			Duchess of Devonshire	
Mrs	Evans		Sloane Street	yes, p. 109			p. 116		
Mrs	Everett		Russell Square	yes, p. 104			p. 116		
Miss	Fanshawe					p. 15			
Miss	Fanshawe	Catherine				p. 15			
Miss	Farnworth	M	Newman Street	yes, p. 86			p. 116		
Miss	Farquhar		Conduit Street	yes, p. 37			p. 116		
Lady	Fawcett				7 April 1800, 2:51			Viscountess Palmerston	
Mrs	Fawkes		23 Portman Square	yes, p. 97	4 March 1811, 5:195				
Mrs	Fayle		Southampton Street, Covent Garden	yes, p. 112			p. 116		

Miss	Fayle		Southampton Street, Covent Garden	yes, p. 112			p. 116		
Hon. Mrs	Ferguson		Hinde Street, Manchester Sqaure	yes, p. 69			p. 116		
Miss	Ferrington		15 Kings Arms Yard	no	12 January 1812, 5:262	p. 10			
Right Hon. Lady	Finch	Charlotte			17 February 1800, 1:129 and 7 April 1800, 2:51			Viscountess Palmerston	
Mrs	Fisher					p. 14			
Miss	Fitzhugh	Emily	Portland Place	yes, p. 96	10 March 1800, 2:7			Mrs Crewe	
Lady	Fitzwilliam	Frances	6 Upper Winpole Street	yes, p. 124	11 February 1811, 5:184	p. 15			
Mrs	Flaxman		Buckingham Street, Fitzroy Square	yes, p. 28			p. 116		
Mrs	Fleetwood		Palace Street	no			p. 116		
Hon. Miss	Flower	Caroline	Lower Berkley Street, Manchester Square	yes, p. 21			p. 116		
Right Hon. Lady	Flynne	Caroline	Grosvenor Street	yes, p. 60	27 January 1812, 5:264	p. 10			
Mrs	Forbes		Berkley Square	yes, p. 20	27 January 1812, 5:264	p. 10			
Miss	Forbes		Berkley Square	yes, p. 20	27 January 1812, 5:264	p. 10			
Lady	Ford		Gloucester Place	yes, p. 52	27 January 1812, 5:264	p. 10			
Mrs	Ford		Upper Brook	yes, p. 25			p. 116		

			Street						
Mrs	Fordyce				17 February 1800, 1:129				
Mrs	Forster		South Audley Street	yes, p. 112			p. 116		
Miss	Foulston		19 Margaret Street	yes, p. 82	19 March 1810, 5:53				
Miss	Fox		Hertford Street	yes, p. 68	17 February 1812, 5:272	p. 11			
Miss	Freeman	S	New Bridge Street	no			p. 116		
Mrs	Gandolphy		25 Upper Seymour Street	yes, p. 107	10 February 1812, 5:269	p. 11			
Mrs	Gautier	Mary	Clapham	no	3 February 1806, 4:143 and 2 February 1807, 4:227			Inherited share of her husband, John Guy Gautier	Proprietor
Miss	Gautier					p. 13			
Miss	Gibbes		New Burlington Street	yes, p. 29			p. 116		
Mrs	Gibson		Rodney Buildings, Newington Butts	no			p. 116		
Miss	Gibson	J	Rodney Buildings, Newington Butts	no			p. 116		
Miss	Gibson	A	Rodney Buildings, Newington Butts	no			p. 116		

Miss	Gilbert		6 Holles Street, Cavendish Square	yes, p. 70			p. 116		
Mrs	Gilbert (Giddy)	Davies	6 Holles Street, Cavendish Square	yes, p. 70	4 March 1811, 5:195	p. 13	p. 116		
Mrs Dr	Gillies	William	9 Upper Seymour Street	yes, p. 107	28 January 1811, 5:178	p. 13			
Miss	Gleed		Bedford Street, Covent Garden	no			p. 116		
Lady	Glenbervie		11 Great George Street, Westminster	yes, p. 51			p. 116		
Lady	Glyn		Arlington Street	yes, p. 15			p. 116		
Miss	Glyn		Arlington Street	yes, p. 15			p. 116		
Lady	Glyne		Berkley Square	yes, p. 20			p. 116		
Miss	Goldney		St James's Street	yes, p. 115			p. 116		
Mrs	Goleborn		Welbeck Street	yes, p. 121	10 February 1812, 5:269	p. 11			
Miss	Goleborn		Welbeck Street	yes, p. 121	10 February 1812, 5:269	p. 11			
Miss	Goodwyn	Catherine	Blackheath	no			p. 116		
Mrs	Gordon		Upper Wimpole Street	yes, p. 124	10 March 1800, 2:7			Countess of Sutherland	
Mrs	Gordon		Hill Street	yes, p. 69	27 January 1812, 5:264	p. 10			
Duchess	Gordon				17 February 1800, 1:129				
Countess	Gosford				18 February 1811, 5:187				
Mrs	Gosling	William	Portland Place	yes, p. 96	10 March 1800, 2:7			Countess of	

								Sutherland	
Mrs	Gosling		Bloomsbury Square	yes, p. 23			p. 117		
Miss	Gosling		Bloomsbury Square	yes, p. 23			p. 117		
Miss	Gosling	E	Bloomsbury Square	yes, p. 23			p. 117		
Miss	Gosling		Knightsbridge Green	yes, p. 76			p. 117		
Mrs	Grant	Henry	Portman Square	yes, p. 97	24 February 1800, 1:134			Mrs Sullivan	
Miss	Grant		42 Mortimer Street	yes, p. 84	21 January 1811, 5:174				
Miss	Grant	Sophia Jane	Montagu Street, Portman Square	no			p. 117		
Miss	Grant		Russell Square	yes, p. 104			p. 117		
Miss	Grant	C	Russell Square	yes, p. 104			p. 117		
Miss	Gray		British Museum	yes, p. 105			p. 117		
Miss	Gray	E	British Museum	yes, p. 105			p. 117		
Mrs	Gray	E	Hornsey	no			p. 117		
Miss	Gray		Hornsey	no			p. 117		
Miss	Gray		Queen Square	yes, p. 101	8 April 1805, 4:56				
Mrs	Gray		Queen Square	yes, p. 101			p. 117		
Mrs	Gray					p. 14			
Mrs	Green		Cantebury Square,	no			p. 117		

			Southwark						
Miss	Green		Cantebury Square, Southwark	no			p. 117		
Mrs	Greenough		Harley Street	yes, p. 64			p. 117		
not given	Gregor	Jane	Trewarthenwick , County of Cornwall	no	11 April 1811, 5:207			Her husband, Francis Gregor	Life Subscriber
Mrs	Greig	(Mary Somerville)	Great Russell Street	yes, p. 104			p. 117		
Miss	Greig		Great Russell Street	yes, p. 104			p. 117		
Mrs	Greville	Henry			3 March 1800, 1:137			Mrs Bernard	
Miss	Griffin	E	Park Place	yes, p. 94			p. 117		
Miss	Griffin	M	Park Place	yes, p. 94			p. 117		
Miss	Griffin	S	Park Place	yes, p. 94			p. 117		
Miss	Grimston		42 Grosvenor Square	yes, p. 59			p. 117		
Miss	Grimston	Charlotte	42 Grosvenor Square	yes, p. 59			p. 117		
Mrs	Guillemard		Gower Street	yes, p. 54			p. 10		
Mrs	Gurney	Hudson	Portman Square	yes, p. 97	27 January 1812, 5:264		p. 10		
Mrs	Gurney		Serjeant's Inn	yes, p. 105			p. 117		
Miss	Haden		New Burlington Street	yes, p. 29	17 February 1812, 5:272		p. 11		
Mrs	Haldimand		Curzon Street May Fair	yes, p. 40	2 March 1812, 5:278		p. 12		
Miss	Halford						p. 14		
Miss	Hall		Grenville Street in 1806	yes, p. 58			p. 15	p. 117	

Mrs	Hamilton		Bentinck Street	yes, p. 19			p. 117		
Miss	Hankey		Bedford Square	yes, p. 18	17 February 1812, 5:272	p. 11			
Viscountess	Harberton				7 April 1800, 2:51			Mrs Sullivan	
Hon. Mrs	Harcourt				17 February 1800, 1:129				
Mrs	Harford		31 Upper Brook Street	yes, p. 25	3 February 1812, 5:266	p. 11			
Miss	Harford		Clapham common	no			p. 117		
Miss	Harford	E	Clapham common	no			p. 117		
Miss	Harford	Lucy	Clapham common	no			p. 117		
Lady	Harley	Jane	14 Cavendish Square	yes, p. 30	19 March 1810, 5:53				
Mrs	Harman	E	Finsbury Square	no			p. 118		
Mrs	Harman	J	Frederick's Place, Old Jewry	no			p. 117		
Mrs	Harman		New Broad Street	no			p. 117		
Miss	Harman		New Broad Street	no			p. 117		
Miss	Harman	L	New Broad Street	no			p. 117		
Mrs	Harris		Percy Street, Fitzroy Square	no			p. 118		
Mrs	Hatchett	Elizabeth	In 1805, Lower Mall, Hammersmith. In 1811, 2 Clarges Street	Lower Mall, no. Clarges Street, yes, p. 35	25 February 1811, 5:192		p. 118	Her husband, Charles Hatchett	Life Subscriber

Miss	Hatchett		2 Clarges Street	yes, p. 35	11 March 1811, 5:197				
Mrs	Hatsell		Terrace, New Street, Spring Garden	yes, p. 85			p. 118		
Miss	Hatsell	F	Terrace, New Street, Spring Garden	yes, p. 85			p. 118		
Miss	Hayman				24 February 1800, 1:134			Viscountess Palmerston	
Miss	Hays	Ann			27 August 1810, 5:134				Proprietor
Mrs	Heathcote		St James's Square	yes, p. 114			p. 118		
Mrs	Hebdin		Parliament Street	yes, p. 95			p. 118		
Miss	Hebdin		Parliament Street	yes, p. 95			p. 118		
Mrs	Hemans		Kensington Square	no			p. 118		
Lady	Herbert	Diana			5 March 1810, 5:46			Countess Spencer	
Mrs	Heron		Baker Street	yes, p. 16			p. 118		
Miss	Heron		Baker Street	yes, p. 16			p. 118		
Miss	Heron	E	Baker Street	yes, p. 16			p. 118		
Mrs	Hewlett	John			23 January 1804, 3:204				
Mrs	Hibbert		Charles Street, Berkley Square	yes, p. 32			p. 118		
Miss	Hinchliffe		Green Street	yes, p. 57		p. 16	p. 118		
Mrs	Hincks		Somerset Street, Portman	yes, p. 110		p. 14	p. 118		

			Square						
Lady	Hippisley	Elizabeth Anne	17 Lower Grosvenor Street	yes, p. 60	5 December 1803, 3:172	p. 15			Distinguished Patroness from 5 December 1803
Miss	Hoare		Fleet Street	no	22 April 1805, 4:62				
Mrs	Hoare		Fleet Street	no	22 April 1805, 4:62				
Mrs	Hoare		Hampstead Heath	no			p. 118		
Miss	Hoare		Hampstead Heath	no			p. 118		
Miss	Hoare	S	Hampstead Heath	no			p. 118		
Miss	Hobhouse		Dover Street	yes, p. 43			p. 118		
Miss	Hobson	M	Artillery Place, Finsbury Square	no			p. 118		
Miss	Hobson	S	Artillery Place, Finsbury Square	no			p. 118		
Miss	Hodgson		Orchard Street	yes, p. 91	10 March 1800, 2:7		p. 118	Viscountess Palmerston	
Right Hon. Lady	Holland				21 April 1800, 2:59			Countess of Bessborough	
Miss	Holland		Hans Place, Sloane Street	no			p. 118		
Miss	Home		Grosvenor Street	yes, p. 60			p. 118		
Mrs	Hooke		Grove Lane, Camberwell	no			p. 118		
Mrs	Hope	Thomas	Duchess Street	yes, p. 45	4 February 1811, 5:182				
Mrs	Hoppner		Charles Street,	yes, p. 32			p. 118		

			St James's Square						
Miss	Hoppner		Charles Street, St James's Square	yes, p. 32			p. 118		
Mrs	Horner		48 Bernard Street	yes, p. 21	12 January 1812, 5:262	p. 10			
Miss	Horner	F. C.	6 Russell Square	yes, p. 104	12 January 1812, 5:262	p. 10			
Miss	Horner	A. W.	6 Russell Square	yes, p. 104	12 January 1812, 5:262	p. 10			
Miss	Hough		Tavistock Street, Bedford Square	yes, p. 119			p. 118		
Mrs	Houlton	Hartwell	Hartwell, Somerset House	yes, p. 110	23 March 1812, 5:284	p. 12			
Mrs	Howard		Argyll Street	yes, p. 14			p. 118		
Miss	Howard		New Bond Street	yes, p. 24			p. 118		
Mrs	Howis		Piccadilly	yes, p. 96			p. 118		
Mrs	Howorth		Craven Hill	no			p. 118		
Mrs	Huber		Duke Street, Manchester Square	yes, p. 44	17 February 1800, 1:129	RI/MS/AD/02/A/01/A, box 261, page 69.			
Mrs	Hughs		Harley Street	yes, p. 64			p. 118		
Miss	Hulse				6 April 1812, 5:287	p. 12			
Mrs	Hume		Long Acre	no	20 May 1805, 4:77		p. 119		
Miss	Hunter	Euphemina Jane			3 July 1809, 4:466			Inherited share of her father, John Huntler, M.D.	Proprietor
Mrs	Hunter	Anne	Grosvenor	yes, p. 60			p. 119		

			Street						
Right Hon. Lady	Huntingfield		36 Grosvenor Square	yes, p. 59	24 March 1800, 2:32			Viscountess Palmerston	
Miss	Hurst		Argyll Street	yes, p. 14			p. 119		
Mrs	Huskisson				17 March 1800, 2:21			Countess of Sutherland	
Mrs	Hutchinson		Marsham Street	no			p. 119		
Mrs	Idle		Adelphi Terrace	yes, p. 13			p. 119		
Mrs	Iremonger		15 Upper Grosvenor Street	yes, p. 60	21 January 1811, 5:174	p. 13			
Mrs	Ivison		Chapel Street Lisson Green	no	24 February 1812, 5:274	p. 11			
Mrs	Izard		Wimpole Street	yes, p. 123			p. 119		
Miss	Izard	Patience	Wimpole Street	yes, p. 123			p. 119		
Miss	Izard	Rosetta	Wimpole Street	yes, p. 123			p. 119		
Miss	Jackson	F. A.	Curzon Street	yes, p. 40		p. 14	p. 119		
Miss	Jackson	S. J.	Curzon Street	yes, p. 40	13 January 1806, 4:135	p. 14	p. 119		
Mrs	Jacob		Canonbury Place	no			p. 119		
Mrs	Jacobs		Great Portland Street	yes, p. 97			p. 119		
Mrs	Janson	Halsey	Bull's Head Passage, Wood Street	no			p. 119		
Mrs	Jeffrey				18 February 1811, 5:187				
Miss	Jelfe		Piccadilly and	yes, p. 96	24 March 1800, 2:31	p. 15	p. 119	Viscountess	

			Hamilton Street Hyde Park Corner in 1806					Palmerston	
Mrs	Jellicoe		Bedford Square	yes, p. 18			p. 119		
Mrs	Johnston		Upper Wimpole Street	yes, p. 124			p. 119		
Miss	Johnston		Upper Wimpole Street	yes, p. 124			p. 119		
Mrs	Jones	Elizabeth	New Street, Spring Gardens	yes, p. 85	4 February 1805, 4:19			Inherited share of her brother, John Ibbetson	Proprietor
Lady	Jones		Boulton Street, Piccadilly	yes, p. 24			p. 119		
Mrs	Kay					p. 14			
Miss	Keene		Charles Street, Berkley Square	yes, p. 32		p. 14	p. 119		
Mrs	Keir					p. 14			
Miss	Keir					p. 14			
Mrs	King		Kensington	no			p. 119		
Miss	Kirkpatrick		Nottingham Place, Mary-le-bone	yes, p. 89			p. 119		
Hon. Mrs	Knox	George	Albemarle Street	yes, p. 14			p. 119		
Miss	Knox		Devonshire Place	yes, p. 41			p. 119		
Miss	Knyvett	Charles	Edward Street, Cavendish Square	yes, p. 46			p. 119		
Miss	Ladbroke		Russell Square	yes, p. 104		p. 15	p. 119		

Mrs	Langford Brook		Albemarle Street	yes, p. 14			p. 113		
Miss	Langston		Clifford Street	yes, p. 36			p. 119		
Marchionesses	Lansdowne					p. 10			
Mrs	Law		18 Portland Place	yes, p. 96	19 March 1810, 5:53	p. 14	p. 119		
Mrs	Lawford		Guildford Street	yes, p. 61			p. 119		
Mrs	Leathe				10 March 1800, 2:7			Viscountess Palmerston	
Mrs	Leckie		17 Everett Street, Russell Square	yes, p. 104	3 February 1812, 5:266	p. 11			
Mrs	Leeds		Hoxton Park	no	18 March 1811, 5:200				
Mrs	Legh	John	Hertford Street	yes, p. 68			p. 119		
Miss	Leighton		Spring Garden	yes, p. 113	17 March 1800, 2:21			Viscountess Palmerston	
Mrs	Lettsom		Fulham Cottage	no			p. 120		
Mrs	Lewis		Half Moon Street	yes, p. 62			p. 120		
Miss	Lewis		Half Moon Street	yes, p. 62			p. 120		
Miss	Lewis		Montagu Place	yes, p.84	9 March 1812, 5:280	p. 12			
Mrs	Lewis		Welbeck Street	yes, p. 121		p. 15	p. 120		
Miss	Lewis		Welbeck Street	yes, p. 121		p. 15	p. 120		
Lady	Lilford		Albermarle Street	yes, p. 14	7 December 1801, 2:221				
Mrs	Lillingstone	Spooner			3 March 1800, 1:137			Mrs Bernard	
Mrs	Lister		Lincoln's Inn	yes, p. 78			p. 120		

			Fields						
Mrs	Liston		Pall Mall	yes, p.92	27 January 1812, 5:264	p. 10			
Miss	Lloyd	A	Great Tower Street	no	15 April 1805, 4:58		p. 120		
Mrs	Lockett					p. 16			
Mrs	Loftus		35 Wimpole Street	yes, p. 123	23 March 1812, 5:284	p. 12			
Countess	Lonsdale				17 February 1800, 1:129				
Countess	Louden and Moira					p. 10			
Mrs	Lowry		Titchfield Street	yes, p. 120	7 December 1801, 2:218			Mrs Sullivan	
Mrs	Lubbock	John	Duke Street, Westminster	yes, p. 44			p. 120		
Dowager Countess	Lucan				7 April 1800, 2:51			Viscountess Palmerston	
Dowager Lady	Lyttleton		17 Berkley Street	yes, p. 21	24 February 1800, 1:134			Mrs Bernard	
Miss	Macdonald	L	Duke Street, Westminster	yes, p. 44		p. 13	p. 120		
Lady	Macdonald	Louisa	Duke Street, Westminster	yes, p. 44		p. 13	p. 120		
Miss	Macdonald	C	Duke Street, Westminster	yes, p. 44		p.9	p. 120		
Mrs	Mackenzie		Albemarle Street	yes, p. 14	12 January 1812, 5:262	p. 10			
Miss	Mackenzie					p. 14			
Miss	Mair		Kensington	no			p. 120		
Miss	Mair	Eliza	Kensington	no			p. 120		
Mrs	Maitland		Basinghall	no			p. 120		

			Street						
Mrs	Maitland		Clapham common	no			p. 120		
Mrs	Maitland		Hanover Square	yes, p. 63			p. 120		
Mrs	Malcolm		Mansfield Street	yes, p. 82	24 March 1800, 2:32			Lady Campbell	
Mrs	Maling		Sloane Street	yes, p. 109	6 April 1812, 5:287	p. 12			
Mrs	Mallet		Bryanstone Street	yes, p. 27			p. 120		
Mrs	Manning	Mary	New Street, Spring Gardens	yes, p. 85			p. 120		
Mrs	Marcet	Jane		no	Marcet, <i>Conversations on Chemistry</i> , 1:vi				
Right Hon. Lady	Markham	Mary	Park Place	yes, p. 94	27 January 1812, 5:264	p. 10			Wife or daughter of Proprietor
Miss	Martin	Mary	Poet's Corner, Westminster	yes, p. 92			p. 120		
Mrs	Martin	Henry	Russell Square	yes, p. 104			p. 120		
Miss	Martineau	S	King's Arms Stairs, Lambeth	no			p. 120		
Mrs	Matheson		Conduit Street	yes, p. 37			p. 120		
Mrs	Maxwell		Cavendish Square	yes, p. 30			p. 120		
Miss	McArthur		York Place, Portman Square	yes, p. 125			p. 120		
Miss	McKenzie				10 February 1806, 4:144				Transferrable ticket of Proprietor

									Mr Matthew Boulton (Soho)
Lady	Metcalf		Portland Place	yes, p. 96			p. 120		
Miss	Metcalf		Portland Place	yes, p. 96			p. 120		
Miss	Metcalf	G	Portland Place	yes, p. 96			p. 120		
Miss	Metcalf	G	Portland Place	yes, p. 96			p. 121		
Mrs	Meux		Bloomsbury Square	yes, p. 23	10 March 1800, 2:7				Mrs Bernard
Miss	Meux		Bloomsbury Square	yes, p. 23	10 March 1800, 2:7				Mrs Bernard
Mrs	Meux	Richard	Bloomsbury Square	yes, p. 23	10 March 1800, 2:7				Mrs Bernard
Miss	Meux	Frances	Bloomsbury Square	yes, p. 23	10 March 1800, 2:7				Mrs Bernard
Mrs	Meyer		Hackney	no			p. 121		
Mrs	Meyrick		Grosvenor Street	yes, p. 60	10 March 1800, 2:7				Mrs Sullivan
Dowager Viscountess	Middleton				7 April 1800, 2:51				Viscountess Palmerston
Mrs	Middleton					p. 15			
Lady	Milbanke		Grosvenor Square 1800, Portland Place 1805	yes, p. 59 and p. 96	24 March 1800, 2:32		p. 120		Mrs Barington
Miss	Milford					p. 16			
Mrs	Millington		Berners Street	yes, p. 22			p. 121		
Mrs	Milne					p. 14			
Viscountess	Milton				6 May 1811, 5:217				
Miss	Mitchell		Berners Street	yes, p. 22			p. 121		
Lady	Moncreiffe		Baker Street,	yes, p. 15			p. 120		

			Portman Square						
Miss	Moncreiffe		Baker Street, Portman Square	yes, p. 15			p. 121		
Right Hon. Lady	Montagu	Jane	Baker Street	yes, p. 16	10 February 1812, 5:269	p. 11	p. 120		
Lady	Montgomerie		Piccadilly	yes, p. 96			p. 120		
Mrs	Moody		Queen Square, Bloomsbury	yes, p. 101			p. 121		
Mrs	Moore		Lower Brook Street, Grosvenor Square	yes, p. 26	4 May 1801, 2:170			Duchess of Devonshire	
Miss	Mordaunt					p. 13			Wife or daughter of Proprietor
Miss	Morice	M					p. 121		
Mrs	Morland	Bernard	54 Parliament Street	yes, p. 95	Annual subscriptions 1805-1824				
Miss	Morland	Maryanne Bernard	54 Parliament Street	yes, p. 95	Annual subscriptions 1805-1824	p.9			Wife or daughter of Proprietor
Miss	Morland	Bernard	54 Parliament Street	yes, p. 95	Annual subscriptions 1805-1824	p.9			
Mrs	Morley	W	New Broad Street Buildings	no			p. 121		
Mrs	Moss		Red Lion Street	no			p. 121		
Mrs	Motte		Mortimer Street, Cavendish Square	yes, p. 84		p. 14	p. 121		
Miss	Motteux		Gloucester	yes, p. 52			p. 121		

			Place						
Miss	Motteux		Gloucester Place	yes, p. 52			p. 121		
Mrs	Moubray		35 Wimpole Street	yes, p. 123	23 March 1812, 5:284	p. 12			
Mrs	Mowbray				16 March 1807, 4:239			Mrs Bernard	
Miss	Mowbray				16 March 1807, 4:239			Mrs Bernard	
Mrs	Munn					p. 15			
Mrs	Munsey		Bayswater	no			p. 121		
Miss	Murdoch				13 January 1812, 5:259	p. 10			
Miss	Murdoch	Julia			13 January 1812, 5:259	p. 10			
Miss	Murdoch	Louisa			13 January 1812, 5:259	p. 10			
Miss	Neale		52 Charlotte Street, Portland Place	yes, p. 35		p. 10			
Miss	Newell		Duke Street, Manchester Square	yes, p. 44			p. 121		
Mrs	Newman		Southampton Street, Russell Square	yes, p. 112			p. 121		
Mrs	Nicholson		White Horse Street, Piccadilly	no			p. 121		
Miss	Nicolls		Hampstead	no			p. 121		
Mrs	Noble		Albemarle Street	yes, p. 14			p. 121		
Miss	Norman		Golden Square	yes, p. 53			p. 121		

Miss	Norris		Belgrave Place, Pimlico	no	8 April 1805, 4:56		p. 121		
Miss	North		Walworth	no		p. 14	p. 121		
Miss	North	E	Walworth	no			p. 121		
Mrs	Odell		10 Queen Ann Street West	yes, p. 100	28 January 1811, 5:178				
Mrs	Olier		Gloucester Street, Portman Square	yes, p. 53			p. 121		
Mrs	Oom		Bedford Square	yes, p. 18	17 February 1812, 5:272	p. 11			
Mrs	Opie	Amelia			23 January 1804, 3:204				Life Subscriber
Countess	Oxford		14 Cavendish Square	yes, p. 30	19 March 1810, 5:53				
Miss	Pakenham		Grafton Street, Fitzroy Square	yes, p. 55			p. 121		
Miss	Palmer		Christ's Hospital	no			p. 121		
Miss	Palmer	A	Christ's Hospital	no			p. 121		
Miss	Palmer	H	Christ's Hospital	no			p. 121		
Viscountess	Palmerston	Mary Mee	Hanover Square	yes, p. 63	17 February 1800, 1:129 and 19 March 1804, 3:235				Distinguishe d Patroness
Frances	Palmerston				<i>Sparrow, Knight of the White Eagle, 124</i>				
Elizabeth	Palmerston				<i>Sparrow, Knight of the White Eagle, 124</i>				
Miss	Parker		Northumberlan d Street	yes, p. 83	10 March 1800, 2:7			Mrs Bernard	
Miss	Parkins		40 Weymouth Street	yes, p. 123	12 January 1812, 5:262	p. 10			
Mrs	Parkins					p. 13			

Miss	Parry		Gloucester Street	yes, p. 53			p. 121		
Miss	Parry	A	Gower Street	yes, p. 54			p. 121		
Miss	Parry	E	Gower Street	yes, p. 54			p. 121		
Miss	Pate		John Street, Bedford Row	yes, p. 73			p. 121		
Miss	Paytherus		Great Russell Street	yes, p. 104			p. 122		
Dowager Countess	Pembroke	Catherine Woronzow			5 March 1810, 5:46			Countess Spencer	
Miss	Pepperell		Wellbeck Street	yes, p. 121	24 March 1800, 2:32			Viscountess Palmerston	
Right Hon. Lady	Percival	Elizabeth	Bruton Street	yes, p. 27	30 March 1800, 2:36			Countess Spencer	
Mrs	Perry		Strand	no		p. 13	p. 122		
Mrs	Peters	Mary			7 April 1800, 2:51			Mrs Sullivan	
Right Hon. Lady	Petre				17 February 1800, 1:129				
Mrs	Pigou	William			17 March 1800, 2:22			Mrs Sullivan	
Miss	Pigou		Hill Street, Berkley Square	yes, p. 69	9 March 1812, 5:280	p. 12			
Mrs	Pigou	Frederick	Hill Street, Berkley Square	yes, p. 69			p. 122		
Miss	Pitt	Isabella	Upper Brook Street	yes, p. 25			p. 122		
Miss	Plowden		Devonshire Place	yes, p. 41			p. 122		
Miss	Plowden	H	Devonshire Place	yes, p. 41			p. 122		
Miss	Plowden	E	Devonshire Place	yes, p. 41			p. 122		
Countess	Plymouth		Lower	yes, p. 59	24 March 1800, 2:32			Countess of	

			Grosvenor Street					Bessborough	
Mrs	Pocock		Grosvenor Street	yes, p. 60		p. 14	p. 122		
Miss	Pocock		Grosvenor Street	yes, p. 60			p. 122		
Miss	Pole Carew	E	New Cavendish Street	yes, p. 30			p. 114		
Miss	Pole Carew	J	New Cavendish Street	yes, p. 30			p. 114		
Miss	Pole Carew		New Cavendish Street	yes, p. 30			p. 114		
Mrs	Pope		Bloomsbury Square	yes, p. 23	22 April 1805, 4:62		p. 122		
Mrs	Porden		59 Berners Street	yes, p. 22	4 February 1811, 5:182	p. 13			
Miss	Porden					p. 13			
Viscountess	Powerscourt				11 February 1811, 5:184				
Miss	Powys 1		Albermarle Street	yes, p. 14	7 December 1801, 2:221				
Miss	Powys 2		Albermarle Street	yes, p. 14	7 December 1801, 2:221				
Miss	Powys 3		Albermarle Street	yes, p. 14	7 December 1801, 2:221				
Mrs	Prime		Upper Brook Street	yes, p. 25		p.9	p. 122		Wife or daughter of Proprietor
Miss	Prime	Elizabeth	Upper Brook Street	yes, p. 25		p.9	p. 122		Wife or daughter of Proprietor
Miss	Prime	Frances	Upper Brook	yes, p. 25		p.9	p. 122		Wife or

			Street						daughter of Proprietor
Miss	Prime					p.9			Wife or daughter of Proprietor
Miss	Prinsep		Leadenhall Street in 1806. Curzon Street in 1812.	Leadenhall Street, no. Curzon Street yes, p. 40.	2 March 1812, 5:278	p. 12		p. 122	
Lady	Proby	Charlotte	Great Cumberland Place	yes, p. 39				p. 121	
Mrs	Puller		Winchester Street, Broad Street	no				p. 122	
Miss	Puller		Winchester Street, Broad Street	no				p. 122	
Mrs	Pulsford		Great St. Helens	no				p. 122	
Miss	Pulsford		Great St. Helens	no				p. 122	
Miss	Pulsford	A	Great St. Helens	no				p. 122	
Miss	Pulsford	S	Great St. Helens	no				p. 122	
Miss	Pulsford	J	Great St. Helens	no				p. 122	
Mrs	Pulteney		King Street, Covent Garden	no				p. 122	
Miss	Pume 1				18 March 1811, 5:201				
Miss	Pume 2				18 March 1811, 5:201				
Mrs	Pybus		Old Bond Street	yes, p. 23				p. 122	

Miss	Pybus		Old Bond Street	yes, p. 23			p. 122		
Miss	Rackett					p. 15			
Mrs	Raikes		Grosvenor Street	yes, p. 60			p. 122		
Miss	Raikes		Grosvenor Street	yes, p. 60			p. 122		
Mrs	Randall		Hinde Street, Manchester Sqare	yes, p. 69			p. 122		
Miss	Randall	H	Hinde Street, Manchester Sqare	yes, p. 69			p. 122		
Mrs	Ranking		Cheapside	no	3 February 1812, 5:266	p. 11			
Miss	Ranking		Cheapside	no	3 February 1812, 5:266	p. 11			
Miss	Ranking		Cheapside	no	3 February 1812, 5:266	p. 11			
Mrs	Rattray		35 Wimpole Street	yes, p. 123	23 March 1812, 5:284	p. 12			
Mrs	Ravenscroft		Harley Street	yes, p. 64	10 March 1800, 2:7			Mrs Crewe	
Miss	Ravenscroft				RI/MS/AD/02/A/01/A , box 261, page 69.				
Miss	Rawlinson		Finsbury Square	no			p. 122		
Mrs	Reaveley		Gower Street	yes, p. 54			p. 122		
Miss	Reaveley		Gower Street	yes, p. 54			p. 122		
Mrs	Reid		Bedford Square	yes, p. 18			p. 122		
Mrs	Reynolds				30 March 1800, 2:36			Mrs Bernard	
Miss	Reynolds		Bedford Square	yes, p. 18	8 April 1805, 4:56				
Miss	Rhodes		Highgate	no	26 March 1804, 3:237		p. 122		

Mrs	Richardson				17 March 1800, 2:22.	p. 15		Mrs Sullivan	
Miss	Ricketts					p. 14			
Lady	Ridley				17 March 1800, 2:21			Hon. Mrs Barrington	
Mrs	Roberts		St Paul's Church Yard	no			p. 123		
Mrs	Robertson		Golden Square	yes, p. 53			p. 123		
Mrs	Robinson		Kensington	no			p. 123		
Mrs	Robley		1 Russel Square	yes, p. 104	28 January 1811, 5:178	p. 14	p. 123		
Mrs	Rogers	Edward	Clapham	no	10 February 1812, 5:269	p. 11			
Mrs	Romilly		Russell Square	yes, p. 104			p. 123		
Miss	Ross	Susan	17 Harley Street	yes, p. 64	1 April 1805, 4:50			Inherited the share of her father, Major General Patrick Ross	Proprietor
Mrs	Ross		Weymouth Street				p. 123		
Lady	Rous		Hertford Street	yes, p. 68			p. 122		
Mrs	Rumsey		Hampstead	no			p. 123		
Mrs	Russell		52 Beaumont Street	yes, p. 17	2 March 1812, 5:278	p. 12			
Miss	Russell		52 Beaumont Street	yes, p. 17	2 March 1812, 5:278	p. 12			
Right Hon. Lady	Saltoun				17 February 1800, 1:129				
Mrs	Saunders		Devonshire Place	yes, p. 41			p. 123		
Miss	Saunders		Russell Square	yes, p.			p. 123		

				104					
Mrs	Scarlet		Upper Guildford Street	yes, p. 61			p. 123		
Mrs	Scott		New Bridge Street	no			p. 123		
Mrs	Scott		Upper Berkley Street	yes, p.20		p. 15	p. 123		
Mrs	Seamen		Upper Gower Street	yes, p. 53			p. 123		
Mrs	Searle		4 Seymour Street Portman Square	yes, p. 106	18 March 1811, 5:201		p. 13		
Miss	Sebright	Frederica	Curzon Street	yes, p. 40	24 February 1812, 5:274		p. 11		
Miss	Sebright	Emily	Curzon Street	yes, p. 40	24 February 1812, 5:274		p. 11		
Miss	Seton		Devonshire Place	yes, p. 41	2 February 1801, 2:125				Lady Campbell
Miss	Seton	A. M.	Devonshire Place	yes, p. 41	2 February 1801, 2:125				Lady Campbell
Mrs	Shaen						p. 15		
Mrs	Sharp	Leadenhall Street						p. 123	
Mrs	Shaw	New Millman Street						p. 123	
Right Hon. Lady	Sheffield				24 February 1800, 1:134				Viscountess Palmerston
Mrs	Sheffield	W. E.	Polygon, Somers Town	no			p. 14	p. 123	
Mrs	Shenton	S	Craven Hill, Bayswater	no				p. 123	

Miss	Shermer		Berners Street	yes, p. 22			p. 123		
Mrs	Sherwill		Sloane Street	yes, p. 109			p. 123		
Mrs	Shipley		Upper Grosvenor Street	yes, p. 60			p. 123		
Hon. Miss	Shore		Clapham	no					
Countess	Shrewsbury		Stanhope Street, May Fair	yes, p. 114			p. 123		
Mrs	Shum		Bedford Square	yes, p. 18			p. 123		
Mrs	Sibley		Queen Square, Bloomsbury	yes, p. 101		p. 13	p. 123		
Mrs	Silvester		Chancery Lane	yes, p. 31			p. 123		
Miss	Simons		Carlisle Street	yes, p. 29			p. 123		
Miss	Simons	Ann	Carlisle Street	yes, p. 29			p. 123		
Mrs	Simpson		Lincoln's Inn Fields	yes, p. 78			p. 123		
Lady	Sitwell				29 April 1811, 5:214				
Miss	Sitwell				29 April 1811, 5:214				
Mrs	Skottowe	Sarah Honeywood	Wimpole Street	yes, p. 123	16 March 1812, 5:282			Her husband, John Skottowe	Life Subscriber
Miss	Slater		Devonshire Street, Portland Place	yes, p. 42		p. 14	p. 124		
Marchionesses	Sligo		10 Grafton Street	yes, p. 55			p. 123		
Miss	Sloper		South Audley Street	yes, p. 112			p. 124		
Miss	Smirke		Charlotte Street, Fitzroy Square	yes, p. 33		p. 14	p. 124		

Miss	Smirnove		Upper Mary-le-bone Street	no			p. 124		
Miss	Smith				17 March 1800, 2:21			Mrs Bernard	
Mrs	Smith		Queen Ann Street West	yes, p. 100	10 March 1800, 2:7			Mrs Sullivan	
Miss	Smith				17 March 1800, 2:22			Mrs Sullivan	
Lady	Smith		Cleveland Row	yes, p. 36	4 February 1811, 5:182				
Miss	Smith		Devonshire Place	yes, p. 41		p. 13	p. 124		
Mrs	Smith		Park Lane, Grosvenor Gate	yes, p. 93	31 December 1810, 5:161				
Miss	Smith		Park Lane, Grosvenor Gate	yes, p. 93	31 December 1810, 5:161				
Miss	Smith		Park Street Westminster	yes, p. 95	6 April 1812, 5:287	p. 12			
Mrs	Smith		Upper Gower Street	yes, p. 53		p. 13	p. 124		
Mrs Rev	Smith	Sydney			10 December 1804, 3:354				
Lady	Smith Burgess		Terrace, Hyde Park	no			p. 111		
Miss	Snow		23 Bloomsbury Square	yes, p. 23	25 February 1811, 5:192				
Mrs	Snow		Saville Row	no			p. 124		
Miss	Solly		Crutched Friars	no		p.9	p. 124		
Mrs	Solly		St Mary Axe	no		p. 14	p. 124		Wife or daughter of Proprietor
Miss	Solly	R	St Mary Axe	no			p. 124		
Miss	Solly	M	St Mary Axe	no			p. 124		
Dowager	Somerset					p. 14			

Lady									
Miss	Sone		Harley Street	yes, p. 64	2 February 1801, 2:131			Lady Campbell	
Mrs	Sotheby	Mary			18 February 1811, 5:187	p. 13			
Lady	Sparrow	Olivia			21 January 1811, 5:174				
Miss	Sparrow				21 January 1811, 5:174				
Mrs	Spedding		Gower Street	yes, p. 54			p. 124		
Countess	Spencer	Lavinia	St James's Place	yes, p. 114	17 February 1800, 1:129				Distinguishe d Patroness
Mrs	St. Barbe		Vine Street, America Square	no			p. 124		
Hon. Miss	St. John		Devonshire Place	yes, p. 41			p. 123		
Hon. Miss	St. John	Barbara	Devonshire Place	yes, p. 41			p. 123		
Miss	Stables					p. 13			
not given	Stacey	Rachel	68 Lambs Conduit Street	yes, p. 77	21 January 1811, 5:174				
Mrs	Stanhope	Spencer	Grosvenor Square	yes, p. 59	16 March 1801, 2:149			Mrs Bernard	
Lady	Stanley	Margaret, née Owen	Grosvenor Place	yes, p. 58	17 March 1800, 2:22			Viscountess Palmerston	
Miss	Stanley		Grosvenor Place	yes, p. 58	17 March 1800, 2:22		p. 124	Viscountess Palmerston	
Miss	Stanley	Emily	Grosvenor Place	yes, p. 58	17 March 1800, 2:22			Viscountess Palmerston	
Miss	Stanley	Louisa	Grosvenor Place	yes, p. 58	17 March 1800, 2:22			Viscountess Palmerston	
Hon. Lady	Stanley	Maria	Portland Place	yes, p. 96	22 April 1811, 5:211	p. 15			

		Josepha							
Mrs	Starling					p. 13			
Lady	Staunton		17 Devonshire Street	yes, p. 42	13 May 1805, 4:73				Sir George Staunton's Transferrable ticket
Mrs	Steers		St James's Place	yes, p. 114	10 March 1800, 2:7			Countess of Sutherland	
Mrs	Stephenson	W	Smith Street, Chelsea	yes, p. 109			p. 124		
Miss	Stephenson	I. D.	Smith Street, Chelsea	no			p. 124		
Miss	Stephenson	Elizabeth	Smith Street, Chelsea	no			p. 124		
Miss	Stephenson	Selina	Smith Street, Chelsea	no			p. 124		
Mrs	Stokes		Kennington	no	1 March 1802, 2:247			Countess of Bessborough	
Miss	Story				29 April 1811, 5:214				
Miss	Strickland	Charlotte			2 February 1801, 2:131			Lady Campbell	
Hon. Mrs	Stuart Wortley		Grosvenor Square	yes, p. 59					
Miss	Sturt		Upper Seymour Street	yes, p. 107	6 January 1812, 5:256	p. 10			
Mrs	Sullivan	Mary	Grafton Street	yes, p. 55	17 February 1800, 1:129				Distinguished Patroness
Countess	Sutherland	Elizabeth	Arlington Street	yes, p. 15	24 February 1800, 1:134			Viscountess Palmerston	Distinguished Patroness from 17 January 1803
Miss	Syns	F	Kensington	no			p. 124		

			Gore						
Miss	Syns	C	Kensington Gore	no			p. 124		
Miss	Syns	C. F.	Kensington Gore	no			p. 124		
Miss	Tate		Grosvenor Place	yes, p. 58	17 March 1800, 2:22			Viscountess Palmerston	
Right Hon. Lady	Teignmouth				17 February 1800, 1:129				
Dowager Lady	Templeton		Portland Place	yes, p. 96			p. 124		
Mrs	Thelluson	George			17 March 1800, 2:22			Mrs Sullivan	
Miss	Thompson	C	Golden Square	yes, p. 53			p. 124		
Miss	Thompson	H	Golden Square	yes, p. 53			p. 124		
Miss	Thompson		Sloane Street	yes, p. 109			p. 124		
Miss	Thomson					p. 13			
Miss	Thornton		St James's Square	yes, p. 114			p. 124		
Miss	Thornton	M	St James's Square	yes, p. 114			p. 124		
Miss	Thrale		Great Cumberland Street	yes, p. 39			p. 124		
Miss	Thrale	S	Great Cumberland Street	yes, p. 39			p. 124		
Miss	Towers		45 Queen Ann Street Westminster	yes, p. 100	4 March 1811, 5:195				
Marchionesses	Townshend		Weymouth Street	yes	2 February 1801, 2:131			Viscountess Palmerston	

Mrs	Trail		35 Wimpole Street	yes, p. 123	23 March 1812, 5:283	p. 12			
Miss	Trail		35 Wimpole Street	yes, p. 123	23 March 1812, 5:284	p. 12			
Miss	Traill	Wilhelmina Barbara	64 Upper Seymour Street	yes, p. 107	6 January 1806, 4:131			Thomas Bernard	Proprietor
Mrs	Travers		Swithin's Lane, Lombard Street	no			p. 124		
Miss	Travers	J	Swithin's Lane, Lombard Street	no			p. 124		
Miss	Travers	E	Swithin's Lane, Lombard Street	no			p. 125		
Miss	Trevithick		Argyll Street	yes, p. 14	18 February 1811, 5:187	p. 15			
Hon. Mrs	Trevor		Berkley Square	yes, p. 20		p. 15	p. 124		
Miss	Trotter		Albemarle Street	yes, p. 14			p. 125		
Miss	Trotter	E	Albemarle Street	yes, p. 14			p. 125		
Mrs	Troward		Pall Mall	yes, p.92			p. 125		
Miss	Troward		Pall Mall	yes, p.92			p. 125		
Miss	Truster		Montagu Place	yes, p.84	9 March 1812, 5:280	p. 12			
Mrs	Turnbull		Guildford Street	yes, p. 61			p. 125		
Mrs	Turner		Charlotte Street, Bedford Square	yes, p. 33			p. 125		
Mrs	Turner	S	Devonshire Street, Portland Place	yes, p. 42		p. 14	p. 125		
Mrs	Udney		Hertford Street	yes, p. 68	19 March 1800, 2:26			Hon. Mrs Barrington	
Miss	Underwood		Russell Court,	no			p. 125		

			Drury Lane						
Mrs	Vaillant		Piccadilly	yes, p. 96			p. 125		
Miss	Vaillant	F	Piccadilly	yes, p. 96			p. 125		
Miss	Vansittart	S	36 Great George Street, Westminster	yes, p. 51			p. 125		
Hon. Mrs	Villiers		N Hindley Street	no	24 February 1800, 1:134			Viscountess Palmerston	
Mrs	Vivian		34 Lincolns Inn Fields	yes, p.78	9 March 1812, 5:280	p. 12			
Miss	Vivian		34 Lincolns Inn Fields	yes, p. 78	9 March 1812, 5:280	p. 12			
Lady	Wake				25 April 1800, 2:68			Countess Spencer	
Miss	Wake	Charlotte			25 April 1800, 2:68			Countess Spencer	
Miss	Wake		Dover Street	yes, p. 43			p. 125		
Mrs	Walker		Bedford Square	yes, p. 18		p. 15	p. 125		
Miss	Walker		Berkley Square	yes, p. 20			p. 125		
Mrs	Wall		Hill St., Berkley Square	yes, p. 69			p. 125		
Miss	Waller	Katherine			RI/MS/AD/02/A/01/A , box 261, page 70.				
Mrs	Walpole		Grafton Street	yes, p. 55			p. 125		
Mrs	Ware		Bridge Street, Black Friars	no			p. 125		
Miss	Ware		Bridge Street, Black Friars	no	28 January 1811, 5:178		p. 125		
Miss	Warre	Ellen	George Street Hannover Square	yes, p. 51	11 March 1811, 5:197			Her father, James Warre	Life Subscriber
Miss	Warre		30 George	yes, p. 51	4 February 1811,				

			Street Hannover Square		5:182				
Miss	Warren		Argyll Street	yes, p. 14			p. 125		
Mrs	Warren		Piccadilly	yes, p. 96			p. 125		
Miss	Watson	Cecilia	Queen Square	yes, p. 101	25 November 1811, 5:243			Her father, William Watson	Life Subscriber
Miss	Watter	Katherine	13 Sackville Street	yes, p. 105	10 March 1800, 2:7			Mrs Bernard	
Miss	Webb		Weymouth Street	yes, p. 122			p. 125		
Mrs	Webber				7 April 1800, 2:51			Viscountess Palmerston	
Miss	Webber				7 April 1800, 2:51			Viscountess Palmerston	
Mrs	Weddell		Upper Brook Street	yes, p. 25		p. 14	p. 125		
Lady	Wedderburn		Hanover Square	yes, p. 63			p. 125		
Miss	Welch		Rathbone Place	yes, p. 102			p. 125		
Mrs	West		Bride Lane, Fleet Street	no			p. 125		
Mrs	Weyland	John			10 March 1800, 2:7			Viscountess Palmerston	
Miss	Wheeler		South Street	yes, p. 113			p. 125		
Miss	Wheeler	P	South Street	yes, p. 113			p. 125		
Miss	Whetton		Curzon Street, May Fair	yes, p. 40			p. 125		
Miss	Whitbread		Dover Street	yes, p. 43	9 March 1812, 5:280	p. 12			
Miss	White				10 March 1800, 2:7			Viscountess	

								Palmerston	
Miss	White		22 Wimpole Street	yes, p. 123	28 January 1811, 5:178				
Miss	White		Bloomsbury Square	yes, p. 23				p. 126	
Miss	White		Soho Square	yes, p. 109				p. 126	
Miss	Whyte		Portman Square	yes, p. 97				p. 126	
Miss	Wienhalt		Fitzroy Street	yes, p. 48				p. 126	
Miss	Wienhalt	M	Fitzroy Street	yes, p. 48				p. 126	
Mrs	Wiggan		Craven Hill, Bayswater	no				p. 126	
Miss	Wilbraham	Eliza	56 Upper Seymour Street	yes, p. 107	29 April 1811, 5:214				
Miss	Wilbraham	Ann	56 Upper Seymour Street	yes, p. 107	29 April 1811, 5:214				
Miss	Wilkins	M	Wimpole Street	yes, p. 123				p. 126	
Miss	Wilkins	L	Wimpole Street	yes, p. 123				p. 126	
Mrs	Wilkinson		Streatham, Surrey	no				p. 126	
Miss	Wilkinson		Streatham, Surrey	no				p. 126	
Mrs	Willan		Mary-le-bone Park	no				p. 126	
Miss	Willan	I	Mary-le-bone Park	no				p. 126	
Miss	Willan	J	Mary-le-bone Park	no				p. 126	
Miss	Williams	E	Bedford Square	yes, p. 18				p. 126	
Mrs	Williams	Hamlyn	Berkley Square	yes, p. 20				p. 126	

Miss	Williams	A	Great Russell Street	yes, p. 104			p. 126		
Miss	Williams	H	Great Russell Street	yes, p. 104			p. 126		
Mrs	Williams		Stable Yard	yes, p. 113			p. 126		
Mrs	Williams		Welbeck Street	yes, p. 121			p. 126		
Miss	Williams Wynne		St James's Square	yes, p. 114			p. 126		
Miss	Wilson		31 Harley Street	yes, p. 64	12 January 1812, 5:262	p. 10			
Miss	Wilson	Harriet	31 Harley Street	yes, p. 64	12 January 1812, 5:262	p. 10			
Miss	Wilson		Sloane Street	yes, p. 109			p. 126		
Miss	Wilson	R	Sloane Street	yes, p. 109			p. 126		
Miss	Wilson	J	Sloane Street	yes, p. 109			p. 126		
Mrs	Winthrop		6 New Cavendish Street	yes, p. 30	12 January 1812, 5:262	p. 10			
Miss	Wolff					p. 13			
Miss	Wood		Paddington Green	no			p. 126		
Miss	Wood		Pall Mall	yes, p.92			p. 126		
Mrs	Wright	Elizabeth	Hatton Garden	yes, p. 66	2 March 1807, 4:233		p. 126	Inherited the share of her husband, Peter Wright	Proprietor
Miss	Wrightson		South Audley	yes, p.	10 February 1812,	p. 11			

			Street	112	5:269				
Miss	Wyatt	Edgell	Grosvenor Street	yes, p. 60	24 February 1812, 5:274	p. 11			
Hon. Mrs	Wyndham	Elizabeth Ilive	Portland Place	yes, p. 96	16 February 1801, 2:134	p. 13	p. 125	Countess of Bessborough	
Lady	Yonge				17 March 1800, 2:21			Hon. Mrs Barrington	
Lady	Young	William	Harley Street	yes, p. 64	10 March 1800, 2:7			Mrs Sullivan	