HUMPHRY DAVY AND THE ROYAL INSTITUTION OF GREAT BRITAIN

by

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The abortive attempts of Sir Humphry Davy to introduce modest reforms at the Royal Society of London during his Presidency (1820–27) contrast with his (largely unstudied) earlier experience of administration at the Royal Institution of Great Britain (RI). Davy’s attempts to combat the systemic weaknesses in governance and funding, and his role in effecting changes at the RI, in association with a core group of reformers, merit consideration. This paper analyses important aspects of the early management and social structure of the RI and examines the inner workings of the institution. It shows how and why the Library, its most valuable financial asset, and its celebrated Laboratory, developed along distinctive lines, each with its own support structures and intra-institutional interests. While acknowledging the roles traditionally ascribed to Count Rumford and Sir Joseph Banks, the paper highlights the contributions of other early patrons such as Thomas Bernard, son of a colonial governor of Massachusetts, and Earl Spencer, a leading European bibliophile and RI President from 1813 to 1825. The promotion of a Bill in Parliament in 1810, designed to transform the RI from a proprietary body politic into a corporation of members, and the subsequent framing of the bye-laws, provided opportunities to establish a more democratic structure of elected committees for the conduct of science.

Keywords: Sir Humphry Davy; Royal Institution; institutional governance

The Royal Institution of Great Britain (RI), founded in London in March 1799, was a high-profile metropolitan organization that developed on a grand numerical scale. Within eight years of its foundation it included 374 hereditary Proprietors and more than 500 each of Life and Annual Subscribers.¹ Unlike many contemporary institutions, the facilities of the RI, excluding the Committee of Managers and its subordinate committees, were open to women. In 1806 the names and addresses of almost 500 ‘lady subscribers’ to the lectures were published.² Aspects of the early history of the RI have so far focused on the RI Laboratory, the Theatre and the celebrities who experimented in the former and lectured in the latter, most notably Humphry Davy and Michael Faraday.³ Little has appeared in print on the early development of the Library, which, after the Albemarle Street House itself, was the most financially valuable of the RI’s assets.

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Thus a study of the socio-economic structure of the RI that embraces and underlies all its facilities, and considers the background and literary interests of the Patrons of the library before its becoming ‘an institution within an institution’, is overdue. Certainly, by the end of its first decade, the Library might be considered to have been a success in contrast to the mounting costs and financial difficulties of the RI Laboratory, although by this time the latter had acquired an international reputation for its electrochemical discoveries.

The different currents of historical research have so far presented Davy either as an \textit{arriviste} on the one hand, for whom science served as an entrée to gentrification, or as being subject to determinist interests on the other. Much of the literature on Davy as a reformer has focused on his efforts to refashion the conceptualizations at the heart of chemistry and on his largely abortive attempts to redirect the Royal Society.\textsuperscript{4} However, an investigation of Davy’s career within the organizational structures from which he benefited, before his election to the presidency of the Royal Society in 1820, explains how England’s premier chemist, who retired from the position of resident professor at the age of 35 years, conceived that research should be instigated and supported at an institutional level. The identification of a group of institutional reformers within the RI, and an analysis of the novel features of elected scientific committees, constitute areas of research that have not previously been examined by historians of science.

\textbf{PATRONAL MANAGEMENT}

The internal government of the RI, as set out in the original bye-laws of 1800, provided for the election of officers (President, Vice-Presidents, Secretary, Treasurer), a Committee of Managers, and nine Visitors (audit committee). The first President, Lord Winchilsea, as Gentleman of the Bedchamber, persuaded the King to grant the Royal Title in June 1799 though he was, in many respects, a figurehead.\textsuperscript{5} Although 14 committees were named, each designed to promote the application of science to the common purposes of life, there is no evidence that these were other than still-born.\textsuperscript{6} In the absence of an annual general meeting of the hereditary Proprietors or Life Subscribers, and given that officers, managers and visitors might be re-elected ‘without limitation’, the RI had many of the features of a closed corporation of largely self-perpetuating affinity groups. The more important decisions were taken, often informally, by the founder patrons, Count Rumford and Sir Joseph Banks, President of the Royal Society, supported as necessary by other ‘men of science’, of whom Henry Cavendish was the most eminent.\textsuperscript{7} The contribution of Earl Spencer of Althorp, Northamptonshire, and St James’s Place, London, has been largely overlooked by historians of science. Spencer, a prominent government minister who served as First Lord of the Admiralty in the 1790s and as Home Secretary in 1806–07, subsequently served the RI as its second President.\textsuperscript{8} Of the other founders the most important was the philanthropist Thomas Bernard, the first RI treasurer, whose experience of conveyance law played a crucial role in the acquisition of the Albemarle Street property in 1800.\textsuperscript{9}

The founders of the RI had concerns in the spatial arrangements within the Albemarle Street House and these reflected, to some extent, the physical conditions associated with different approaches to scientific enquiry.\textsuperscript{10} Rumford’s interests required the housing of his collection of mechanical inventions or models and the display of exemplary stoves and kitchens for the benefit of the labouring poor, which, in the event, proved the least successful of the initial RI undertakings. By May 1802 Rumford’s direct involvement in RI affairs was largely over. He had been in serious disagreement with the Committee of Managers for some
time, RI finances were in a precarious state, and he left England for Paris, never to return.  
A range of activities broadly associated with Rumford were slowly wound down, while his plans for an industrial school for improving artisans, in which the RI clerk of works, Thomas Webster, had played a key role, were quietly dropped. Although the RI had sought to eschew party politics, Webster had the distinct impression that the mechanics school was closed for ‘political’ reasons, in that instructing ‘the lower classes’ in science was thought to have dangerous implications during a period of reaction in England and a protracted foreign war.

For upwards of a year it was a matter of debate whether the RI could continue. The parlous state of finances reached a nadir in January 1803 when, to pay outstanding bills of £2000, each of the officers, managers and visitors agreed to subscribe an interest-free loan of £100. It was during this difficult period that Thomas Bernard emerged as the foremost figure, as a visitor and later as a manager, concerned with ‘reducing the expenses and increasing the benefit of the Institution’. Over several months, Bernard’s plans for RI reform were developed, with greater attention paid to potential ‘growth’ areas, namely the RI Laboratory, the Library and the Theatre.

**THE SCIENTIFIC ESTABLISHMENT AND THE LABORATORY**

The spheres of activity of Humphry Davy, who was appointed assistant lecturer in chemistry at the RI in 1801, were subject to committee overview in a number of respects. The Committee of Natural Philosophy and Chemistry (table 1a) had responsibility for syllabus approval and for selecting noteworthy experiments that could be drawn to the attention of the Committee of Managers for submission to the Royal Society. Considerable care seems to have been taken over the publication of the details of Davy’s earliest syllabus of a course of lectures on chemistry. This contrasts with the failure of Davy’s predecessor, Thomas Garnett, to obtain consent for the content of his own syllabus, which, in addition to illness and clashes of personality within the institution, probably contributed to his precipitate departure.

In June 1801 the Board also appointed a Committee for Chemical Investigation and Analysis (Chemistry Committee; table 1b), several of whose members were working practitioners with a community of interest in chemical analysis and galvanism. William Nicholson and Anthony Carlisle, for example, were pioneers in the decomposition of water with the voltaic pile. Another member of the Chemistry Committee, and a close friend of the Prince of Wales, was Lord Dundas, a Whig politician and improving landowner whose estates included alum and alkali works. The committee was chaired by Charles Hatchett, who had Banks’s confidence and who provided continuity (table 1). Within a short time it had secured autonomy from the Committee of Managers in respect of its membership, which was to be limited to committee-approved nominees. Though only intermittently active, the Chemistry Committee exerted considerable influence over the development of the Laboratory. Independently of the managers, it quickly gained control of the requisitioning of chemical materials and of smaller, relatively inexpensive items of apparatus. In these responsibilities, William Hasledine Pepys, a skilled instrument maker, cooperated closely with Davy. The Chemistry Committee was also fortunate, at least in the short term, to have access to the RI’s Journal, for which Davy had editorial responsibilities, and to the Journal of Natural Philosophy, Chemistry, and the Arts, of which William Nicholson was editor. An analysis of Davy’s earliest publications suggests that he made considerable use of both journals.
In 1802–03, Bernard and his associates, the RI treasurer and secretary, had at first proposed ‘to continue the existing scientific establishment alone’. In many respects this was recognition of the impact made by Davy, whose importance to the RI was reflected in his salary, which, even at a time of financial stringency, had increased threefold. Within the course of 18 months, Davy had risen from assistant lecturer to Professor of Chemistry and had begun to acquire a reputation both as a success in the Lecture Theatre and as one of the best science performers in London. From its inception, the RI had placed emphasis on the delivery of Theatre lectures through demonstrations, illustrations and experimentations, approaches humorously depicted in Gillray’s well-known caricature of May 1802.

In the absence of facilities for practical research at the Royal Society, its President, Sir Joseph Banks, took a keen interest in the development of the RI Laboratory, its personnel and its support committees. It was Banks who, within days of Gillray’s caricature of the RI, proposed that Davy should be promoted to Professor of Chemistry. Davy’s quest for

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Table 1. RI Committees of Natural Philosophy, Chemistry and Science. (The italicized descriptions are derived from ODNB (2004).)

<table>
<thead>
<tr>
<th>name</th>
<th>description</th>
<th>RI management position</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Committee of Natural Philosophy and Chemistry—appointed 31 March 1800</td>
<td>manager</td>
<td></td>
</tr>
<tr>
<td>Blagden, C.</td>
<td>physician; secretary of the Royal Society</td>
<td>manager</td>
</tr>
<tr>
<td>Cavendish, H.</td>
<td>natural philosopher</td>
<td>manager</td>
</tr>
<tr>
<td>Farish, W.</td>
<td>professor of chemistry</td>
<td>manager</td>
</tr>
<tr>
<td>Gray, E. W.</td>
<td>physician and museum curator</td>
<td>manager</td>
</tr>
<tr>
<td>Hatchett, C.</td>
<td>chemist</td>
<td>manager</td>
</tr>
<tr>
<td>Maskelyne, N.</td>
<td>astronomer and mathematician</td>
<td>manager</td>
</tr>
<tr>
<td>Planta, J.</td>
<td>principal librarian at British Museum</td>
<td>manager</td>
</tr>
<tr>
<td>Rennell, J.</td>
<td>cartographer</td>
<td>manager</td>
</tr>
<tr>
<td>Vince, S.</td>
<td>astronomer and mathematician</td>
<td>manager</td>
</tr>
<tr>
<td>Hatchett, C. (chairman)</td>
<td>chemist</td>
<td>manager</td>
</tr>
<tr>
<td>Dundas, Lord</td>
<td>politician; landowner; proprietor of alkali works</td>
<td>manager</td>
</tr>
<tr>
<td>Pepys, W. H.</td>
<td>surgeon instrument maker; natural philosopher</td>
<td>manager</td>
</tr>
<tr>
<td>Nicholson, W.</td>
<td>chemist and inventor</td>
<td>pioneers of the voltaic battery</td>
</tr>
<tr>
<td>Carlisle, A.</td>
<td>surgeon and anatomist</td>
<td>manager</td>
</tr>
<tr>
<td>Chenevix, R.</td>
<td>chemist and mineralogist</td>
<td>manager</td>
</tr>
<tr>
<td>Pearson, G.</td>
<td>physician and chemist</td>
<td>manager</td>
</tr>
<tr>
<td>Howard, E.</td>
<td>chemist</td>
<td>manager</td>
</tr>
<tr>
<td>(c) Committee of Science—appointed 2 May 1803</td>
<td>Vice-President</td>
<td></td>
</tr>
<tr>
<td>Bernard, T.</td>
<td>philanthropist</td>
<td>secretary</td>
</tr>
<tr>
<td>Auriol, J. P.</td>
<td>banker</td>
<td>manager</td>
</tr>
<tr>
<td>Spencer, Earl</td>
<td>Chair of Library Patrons; politician; bibliophile</td>
<td>manager</td>
</tr>
<tr>
<td>Banks, Sir J.</td>
<td>President of the Royal Society/naturalist</td>
<td>manager (to 1803)</td>
</tr>
<tr>
<td>Cavendish, H.</td>
<td>natural philosopher</td>
<td>manager</td>
</tr>
<tr>
<td>Hatchett, C.</td>
<td>chemist</td>
<td>manager</td>
</tr>
<tr>
<td>Symmons, J. a</td>
<td>‘independent; dilettante’</td>
<td>manager</td>
</tr>
<tr>
<td>added 7 May 1804</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dartmouth, Earl</td>
<td>politician</td>
<td>manager</td>
</tr>
</tbody>
</table>

Symmons, John (–1832) FRS FAS FLS, of Paddington House, was an active RI manager for several years who regularly attended the Committee of Managers, and was a Library (life) Patron. Symmons wrote several pamphlets on parliamentary reform; his daughter married Anthony Carlisle, surgeon (table 1b).
status and his self perception as the Newton of chemistry can be seen in a contemporary portrait of 1803 that depicts Davy as an experimenter with a research interest in galvanism (figure 1).\textsuperscript{25}

In what is the first, and perhaps only, ‘electro-chemical’ portrait, the iconography includes a pen, laboratory notebook and, in the background, an artefact that is erroneously identified by the National Portrait Gallery as a ‘lamp’ but is actually a wire suspended in water, an essential feature of the experiment for the decomposition of water by Nicholson and Carlisle (1800), which Davy subsequently claimed marked the beginning of the new science of electrochemistry. The ‘book’ (NPG) is almost certainly one of Davy’s laboratory notebooks. (Copyright © National Portrait Gallery, London.) (Online version in colour.)

Charles Hatchett, elected to the Committee of Managers in 1803, was for several years a leading figure at the RI, reflected both in the regularity of his attendance and in his association with Thomas Bernard. As Chairman of the Chemistry Committee, Hatchett helped to set in
motion the refurbishment of the Laboratory and the provision of an adjacent Theatre for the expert witness of experiments. In effect, and in accordance with Davy’s inclinations, greater emphasis was placed on the value of original experimental research.26 On 2 May 1803, a week after Hatchett’s recommendations for ‘the Chemical Department of the Institution’ had been presented to the Committee of Managers, Bernard’s general report on the existing state and progress of the RI as a whole was presented by the visitors to the Proprietors. It was acknowledged that the ‘new plan’ for the Laboratory ‘promises to increase the scope and utility of it’ and to increase the lectures ‘and public experiments’ connected with them. At the same time a new Committee of Science was appointed (table 1c) with regulatory powers over the scientific lectures, the public experiments and the direction of the RI Journal. This committee, which was to meet weekly and to be renewed monthly, enabled Bernard and Hatchett to access the services of both Henry Cavendish, the acknowledged leader of British experimental physics, and Banks, the principal statesman of science. Alongside them, and sharing many common interests, was Earl Spencer, attracted, as always, to any scientific endeavour.

As a result of the changes at the RI, Davy (and later Faraday) had access to three distinct areas of activity: a large Theatre for popular exposition that could, on occasion, hold upwards of 1000 auditors; a smaller basement Theatre, which was capable of accommodating 120 experts and would later be used to teach medical students from nearby St George’s Hospital; and direct and open access to the adjacent Laboratory, which was considered one of the best in the country, if not in Europe.27

THE LIBRARY ESTABLISHMENT

Almost from its inception, the RI had been presented with books and journals; an assistant Librarian was appointed in 1800. By 1802 the Library was divided into two rooms, one for books and the other for foreign newspapers.28 In March 1803 Bernard presented a plan to the Committee of Managers for the further development of the Library and for an additional book collection ‘for the reference of scientific men’ as ‘one of the measures most likely to give permanency and stability to the Royal Institution’. Although officially ‘under the same direction and Government as the other parts of the Institution’, the extensive privileges accorded to the Patrons meant that the Library and Collection of Reference enjoyed a distinctive status within the RI.29 Hereditary patronage was granted for the subscription of £100 or upwards, in addition to the original proprietorship subscription. A subscription of £50 conferred life patronage, and a third category provided for

Subscribers of lesser sums (where their united Subscriptions amount to 60 guineas or upwards) may, by uniting, appoint out of their own number, any one, being a Proprietor, a Patron for Life.30

Patrons had the right to nominate, daily to the Library, one reader ‘of this or any other country’ (figure 2).

Within a month, the Library subscriptions had reached almost £4000. Authority was vested in the Patrons, who were empowered, within a well-organized administrative structure of officers, committees and monthly meetings, to make rules ‘for such part of their Business as they shall think proper’. Particularly important in the autonomy of the Library were the patronal control of funds and the appointment of bankers. In June 1803 the Patrons agreed to work, in pairs or small groups, over a period of six months to prepare lists of books in areas of
their particular interest or expertise. A select committee refined the lists, and orders were placed with the booksellers in November 1803. 

Many of the Library Patrons also served on the Committee of Managers. Their ‘literary interests’, when set alongside other data, enable an analysis to be made of those personalities who largely directed the affairs of the RI at this time (table 2). Earl Spencer, RI manager and Chairman of the Library Patrons, who had a keen interest in the experimental sciences, had collected one of the greatest private libraries in Europe. Many of the Patrons and managers were patrician in their titled backgrounds. Public school education at Eton, Harrow or Westminster was usually followed by Oxford, Cambridge or the Inns of Court. Political affiliations were, in the main, Whiggish. Contemporary directories indicate that many of the landed Proprietors listed in table 2 had both a country seat and a town house. They were both provincial magnates and metropolitans, particularly during the months when Parliament and the law courts were in session.

Further analysis reveals that many Patrons and managers were Fellows of the Society of Antiquaries (FSA) and/or of the Royal Society, indicating that those who influenced or directed the affairs of the RI were devoted to the arts as well as to natural philosophy and the experimental sciences. Several were also associated with the British Institution of Fine
Table 2. RI Library Patrons and managers: background and literary interests. (Key to literary interests: Ag, agriculture; AH, ancient history; An, antiquities; Ar, architecture; As, astronomy; At, arts; Bb, bibliography; BH, British history; Bi, biography; Bo, botany; CCCSL, canon, civil, common, statute law; Ch, chemistry; Cr, criticism; Cy, chronology; Di, dictionaries; G, grammar; Gd, gardening; GRC, Greek and Roman classics; Gy, geography; Ma, mathematics; MC, modern classics; Mf, manufactures; MH, modern history; MNA, military and naval affairs; Ms, miscellaneous; Mu, music; My, midwifery; NH, natural history; NP, natural philosophy; P, painting; PE, political economy and finance; PH, parliamentary history; Py, physics; S, sculpture; Sy, surgery; T, travel and voyages; ThE, theology and ecclesiastical history; Tr, trade; Ty, topography. Descriptions are derived from ODNB/DNB; History of Parliament volumes.)

<table>
<thead>
<tr>
<th>Library Patron</th>
<th>description</th>
<th>RI management position 1807 list</th>
<th>literary interests 1803 list</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spencer, Earl</td>
<td>Chair of Patrons; politician; bibliophile</td>
<td>manager</td>
<td>GRC/MC</td>
</tr>
<tr>
<td>Barrington, S.</td>
<td>Vice Chair of Patrons; bishop of Durham</td>
<td>visitor</td>
<td>ThE</td>
</tr>
<tr>
<td>Winchilsea, Earl</td>
<td>army officer; cricket promoter</td>
<td>President RI</td>
<td>An/Bi/BH/Ty</td>
</tr>
<tr>
<td>Bernard, T.</td>
<td>lawyer; philanthropist</td>
<td>Vice-President</td>
<td>PE/Ms</td>
</tr>
<tr>
<td>Bernard, S.</td>
<td>MP; banker; lawyer</td>
<td>treasurer</td>
<td>An/Bi/BH/CCCSL/My/Py/Ty</td>
</tr>
<tr>
<td>Banks, Sir J.</td>
<td>President of the Royal Society/naturalist</td>
<td>manager</td>
<td>Ag/Bo/Gd/NH</td>
</tr>
<tr>
<td>Sullivan, R. J.</td>
<td>MP; writer</td>
<td>manager</td>
<td>Bb/Ch/Cr/Di/G</td>
</tr>
<tr>
<td>Hippisley, Sir J. C.</td>
<td>politician; lawyer</td>
<td>manager</td>
<td>PH/CCCSL</td>
</tr>
<tr>
<td>Dartmouth, Earl</td>
<td>politician</td>
<td>manager</td>
<td>Ag/Bo/Gd/NH/PH</td>
</tr>
<tr>
<td>Egremont, Earl</td>
<td>art patron; agriculturist; philanthropist</td>
<td>manager</td>
<td>MH</td>
</tr>
<tr>
<td>Knox, Lord</td>
<td>politician; art collector</td>
<td>manager</td>
<td>PE</td>
</tr>
<tr>
<td>Brent, T.</td>
<td>in the service of Prince of Wales</td>
<td>visitor</td>
<td>Ms</td>
</tr>
<tr>
<td>Bridgewater, Earl</td>
<td>collector of manuscripts; patron</td>
<td>visitor</td>
<td>MNA</td>
</tr>
<tr>
<td>Penn, J.</td>
<td>MP; writer</td>
<td>Proprietor</td>
<td>MH/NP</td>
</tr>
<tr>
<td>Wilberforce, W.</td>
<td>MP; philanthropist; slavery abolitionist</td>
<td>Proprietor</td>
<td>AH</td>
</tr>
<tr>
<td>Gower, Earl</td>
<td>landowner</td>
<td>Proprietor</td>
<td>AH</td>
</tr>
<tr>
<td>Davison, A.</td>
<td>government contractor</td>
<td>Proprietor</td>
<td>Cy/Gy/T</td>
</tr>
<tr>
<td>Angerstein, J. J.</td>
<td>insurance broker; art connoisseur</td>
<td>Proprietor</td>
<td>Ar/Mu/P/S</td>
</tr>
<tr>
<td>Baring, Sir F.</td>
<td>merchant; merchant bank</td>
<td>Proprietor</td>
<td>Ms</td>
</tr>
<tr>
<td>Coutts, T.</td>
<td>banker</td>
<td>Proprietor</td>
<td></td>
</tr>
<tr>
<td>Hoare, H.</td>
<td>banker</td>
<td>Proprietor</td>
<td>MC</td>
</tr>
<tr>
<td>Hope, H.</td>
<td>merchant banker; art connoisseur</td>
<td>Proprietor</td>
<td>Ar/Mu/P/S</td>
</tr>
<tr>
<td>Scott, C.</td>
<td>banker; MP</td>
<td>Proprietor</td>
<td>At/Mf/Tr</td>
</tr>
<tr>
<td>Thornton, S.</td>
<td>merchant; bank governor; MP</td>
<td>Proprietor</td>
<td>At/Mf/Tr</td>
</tr>
<tr>
<td>Watts, D. Pike</td>
<td>merchant; independent</td>
<td>Proprietor</td>
<td>NP</td>
</tr>
<tr>
<td>Marsh, C.</td>
<td>lawyer; MP</td>
<td>Proprietor</td>
<td>Bb/Cr/Di/G</td>
</tr>
<tr>
<td>Moore, D.</td>
<td>lawyer</td>
<td>Proprietor</td>
<td>As/Ma</td>
</tr>
<tr>
<td>Burney, Dr C.</td>
<td>schoolmaster; book collector</td>
<td>Proprietor</td>
<td>Bb/Cr/Di/G/GRC/Ms/ThE</td>
</tr>
<tr>
<td>Wilbraham, R.</td>
<td>patron of literature and science</td>
<td>Proprietor</td>
<td>MC</td>
</tr>
<tr>
<td>Denys, P.</td>
<td>drawing master; landowner</td>
<td>Proprietor</td>
<td>Py/My/Sy</td>
</tr>
<tr>
<td>Ross, Maj. Gen. P.</td>
<td>military engineer; MP</td>
<td>Proprietor</td>
<td>MNA</td>
</tr>
<tr>
<td>Warren, J.</td>
<td>physician</td>
<td>Proprietor</td>
<td></td>
</tr>
</tbody>
</table>

Other Library Patrons and RI Proprietors: Dickenson, C. (As/Ma); Dunlop, W. (Cy/Gy/T); Pieschell, C. (Ch); Smith, T. W. (At/Mf/Tr); Thompson, R. (MC); Wynch, W. (Ms).

Art (BI), which was founded by Thomas Bernard in 1805, and to which the Prince of Wales was elected President in 1810. These included the prestigious financier, Sir Francis Baring; John Julius Angerstein, a leading figure in the Lloyd’s insurance market; Claude Scott, a self-made entrepreneur, banker and government corn contractor; Henry Philip Hope, descendant of a leading family of Amsterdam and London merchants and bankers;
David Pike Watts, who had inherited a fortune from a London wine merchant and was uncle to the painter John Constable; and representatives of the Coutts and Hoares banking houses. These successful businessmen and art collectors, whose attendance is recorded at the conversaciones and exhibitions of the metropolis, were among the leading supporters of the RI. The importance of the agricultural interest to the RI is shown in the membership of several Patrons and managers in the Board of Agriculture, although the Committee of Managers had eschewed agriculture and natural history as being inappropriate subjects for study or discussion. By 1810, Davy was able to state that ‘by the exertions and the contributions of a few noble-minded and enlightened individuals, a great Library of Reference was added’.

**INSTITUTIONAL POLITICS**

The tendency to form or divide into ‘parties’, which permeated Hanoverian Britain, was manifested to a marked degree in the metropolitan societies. It was accentuated by the deep divisions within the royal family, many of whom were official patrons of the institutions, and by the controversy over Catholic relief, an issue that was anathema to the king. Banks, de facto director of the Royal Botanic Gardens at Kew and the king’s adviser on matters of science and agriculture, held George III in high regard. In contrast, he described the Prince of Wales as ‘profligate’. As President of the Royal Society and a statesman of science, Banks sought to eschew party politics, claiming that, of the FFRS, there was ‘not one attending member who is at all addicted to politicks’.

On his appointment to the RI, Davy had expressed the hopes of the founders that the institution would avoid political divisions, although he doubted it would prove possible. And so it transpired. Although Banks had worked with Sir John Coxe Hippisley in drafting the RI bye-laws, the emergence of the latter as a leading manager alongside Thomas Bernard (named a Vice-President in March 1804) seems to have stirred animosities. Re-elected to the House of Commons, Hippisley proclaimed to the Prince of Wales ‘the grateful duty of obeying your Royal Highness’ commands, on every occasion when the personal interests of the Prince of Wales become agitated’. A Whig politician and barrister, Hippisley had long championed Irish Catholic relief. In April 1804, Banks wrote to Rumford of the state of the RI:

> It is now Intirely in the hands of the prophane. I have declared my dissatisfaction at the mode in which it is carried on, & my resolution not to attend in future.

Other developments also gave Banks cause for concern. These included the closure of the printing office, the suspension of the RI Journal, the development of a large mineralogical collection and the introduction of ‘fashionable’ lecture courses commissioned by Bernard. In November 1803 a joint report of the Committees of Science and Accounts noted that ‘the foundation of a mineralogical collection has been laid by the exertions of Professor Davy’. Several Proprietors, and their wives, promised further support. Two months later, Davy advised the Board of the valuable contributions of minerals made by Lady Elizabeth Hippisley and Sir Henry Englefield. Englefield, later described as ‘the first intimate acquaintance Davy had formed in higher circles’, belonged to a long-established Catholic family and a member of the Cisalpine Club. He was a controversial figure, long disliked by Banks. His wide-ranging interests, reflected in his membership of numerous societies, included topography, architecture, astronomy and geology. Politically, Englefield, and several members of the Hippisley family, espoused the cause of Catholic relief.
Clifford, also a Catholic and Cisalpine, who had studied crystallography in Paris and published translations of French works in such varied fields as geology, Jacobinism and the history of secret societies, encouraged Davy to develop the Mineralogical Collection at the RI and to purchase three-dimensional models of crystals.

From the early months of 1804, attention was given to two RI collections, namely books and minerals. A proposal from three Proprietors, all leading collectors, to establish a national mineralogical institution and specialist laboratory made the latter the more urgent. Negotiations to head off the establishment of a possible rival institution proved protracted but in the spring of 1804 a subscription for a mineralogical collection and office of assay was announced. The subscription failed to raise as much as 25% of the estimated requirement of £4000 and, although not Davy’s direct responsibility, it represented a setback in an area of the RI’s activities with which he was becoming increasingly associated. Significantly, although Banks had subscribed to the Library and had for more than 30 years built up a large collection of plants, minerals and fossils from correspondents and dealers in all parts of the known world, he did not contribute to the RI Mineralogical Collection.

In contrast to the mineralogical subscription, the Library subscription, launched almost simultaneously, was a success. The most substantial contributions, in terms of both money and books, were made by the Patrons and managers. The smaller subscribers included lawyers (2), physicians (4) and clergymen (18), among whom were the Bishop of Ely and the headmaster of Charterhouse. The American Philosophical Society presented books to the value of 5 guineas. Contributions from members of the Chemistry Committee were, however, negligible. Hatchett, the chairman, subscribed 10 guineas; Lord Dundas presented books to the value of 15 guineas; but Davy chose not to subscribe at all. One outcome of the shortfall in the mineralogical subscription was an administrative union ‘so as to form one Committee of Patrons for both Collections, each Fund however continuing applicable to its own peculiar objects’.

By 1804, Banks was expressing dissatisfaction to Rumford at the way in which affairs at the RI were being conducted:

> the Institution has irrevocably fallen into the hands of the enemy, and is now perverted to a hundred uses for which you and I never intended it … Adieu, then, Institution! I have long ago declared my intention of attending no more.

Banks resigned from the RI Board in 1805 and was replaced as manager by the Whig MP and lawyer Sir Benjamin Hobhouse, an advocate of religious toleration who wrote pamphlets against the Test Acts. Some months later, William Wilberforce MP, anti-slavery campaigner and RI Proprietor, commented:

> the Royal Institution was almost ruined under the management of Sir Joseph Banks and Count Rumford, but Bernard had recovered it and it was now more flourishing than before.

**THE BRIGHTHELMSTONE (BRIGHTON) COMPACT AND THE CAMBRIDGE CONNECTION**

With the departure of Rumford and Banks, the progress of Davy’s career at the RI was largely determined by direct negotiations with Bernard and Hatchett. Concurrent with the expansion of the Library and the refurbishment of the Laboratory, Bernard was at the forefront of a small group of managers, supported by Davy, who were intent upon the reform of the RI in other ways. In particular, the programme of lectures was reshaped with the provision of fashionable courses designed to attract Annual Subscribers, thereby increasing the requisite income to meet...
the RI’s salary, running and research costs. After the refurbishment of the Laboratory, Davy asked an ‘expert’, Bryan Higgins, to carry out an inspection and to report on improvements deemed necessary. Much influenced by Nicholson’s Dictionary of chemistry, Davy arranged that An explanation of terms used in chemistry, prepared by John Sadler, the chemical operator to the RI, should be published alongside his new course on chemical philosophy.

Davy’s visits to both Brighthelmstone (Brighton) and Cambridge in 1804 remain something of an enigma. Although Bernard and Davy were closely associated at the RI in Albemarle Street, they chose to meet at Brighton, in June, to negotiate a compact. The broad outlines of the meeting can be deduced from a letter wherein Davy recorded his determination to enhance the reputation of the ‘chemical department’ of the RI to that prevailing ‘in all universities and places of public scientific instruction’. Davy also negotiated new ‘regulations’ for himself and for his chemical operator. He promised Bernard, in return, to deliver a new lecture course on ‘Geology or the Chemical History of the Earth’ designed to attract subscribers interested in geology, a popular subject in the early nineteenth century. The Committee of Managers agreed that the Laboratory should be developed along the lines that Davy wanted, with adjustments to what a later age might describe as ‘conditions of service’. Shortly afterwards, he was granted leave of absence to visit the north of Britain and to collect further mineralogical samples.

In July, Davy visited Cambridge. The standard modern biography states, incorrectly, that he registered for a medical course there, an interpretation that cannot be substantiated from the extant sources. Although earlier, in 1795, Davy had recorded medicine as ‘my profession’, had served his apprenticeship with a surgeon-apothecary and had attained recognition in the field of pneumatic therapy at Clifton, he did not, in fact, matriculate at Cambridge. He was simply entered as a Fellow Commoner at Jesus College, which provided dining and perhaps library admission rights but no more. Several of his friends were ‘Cambridge men’, and a Cambridge medical degree would have provided Davy with the status he sought at this time. Posthumously, Davy’s relatives were certainly anxious that his status and his claims to be a ‘Cambridge man’ should be accepted. However, given that those who vouched for Davy at Jesus College were unconnected with medicine but were keenly interested in mineralogy and geology, it is likely that his brief time there was an early stage in an itinerary that would take him north and was, in part, preparation for the new lecture course in geology agreed with Bernard at Brighton.

Davy and Bernard had a devotion both to the experimental sciences and to the arts, moving easily between different intellectual and leisure pursuits. Davy, eligible bachelor and celebrity, attended the conversazione, soirées and social occasions that highlighted the season in the fashionable London metropolis. His earliest publications had been in the poetic mode. He numbered Samuel Taylor Coleridge and Robert Southey among his friends and helped to prepare William Wordsworth’s 1800 edition of Lyrical ballads for the press. At the RI Laboratory, Davy and Thomas Wedgwood experimented on ‘silver pictures’. In 1805, Davy wrote the prologue to The honey moon, a comedy performed at the Theatre Royal in Drury Lane. Two years later he wrote ‘Parallels between art and science’, an essay for the short-lived critical journal Director, of which Bernard was the founder-proprietor.

THE GOLDEN YEARS AND RENEWED CRISIS

The years 1804–07 represent a period of financial solvency for the RI to which Davy, and the new programme that introduced successful lecturers to fashionable metropolitan
audiences, made a significant contribution. Popularizers, for the most part presenters, were conscious of status and were keen to enhance the standing of their emerging professions. James Smith, for example, was President of the Linnean Society, and John George Landseer sought to advance the position of London’s engravers. New lecturing aids aroused such enthusiasm and curiosity that a notice was displayed in the Theatre ‘that no Persons will handle the Apparatus exhibited at the Lectures, as Injuries have been sustained thereby’. An elaborate planetarium, constructed under the supervision of the astronomer-clergyman William Pearson, illustrated the lectures of Thomas Young and John Dalton. Davy had a model ‘working’ volcano made for his geology course; large topographical paintings were commissioned; geological features were enumerated; and, later, ‘transparencies’ were used. The composer William Crotch demonstrated his keyboard skills on a grand piano-forte and an organ specially introduced into the Theatre, and lectures on engraving were enhanced by examples from Earl Spencer’s library. Other presenters, for example the Rev. Sidney Smith—whose lectures were very popular—and Coleridge, relied more on the skills of the wit and the wordsmith (table 3).

The courses attracted a growing number of subscribers, and the mixed-sex audiences, a novel phenomenon of the RI, were commented upon in contemporary correspondence. The familial nature of the RI positively encouraged women, a select number of whom were requested to ‘keep books’ for recording personal recommendations of other members of their sex as potential subscribers. These included the spouses of Thomas and Scrope Bernard; Lavinia, Countess Spencer; and Earl Spencer’s sisters, Georgiana Cavendish, Duchess of Devonshire, and Henrietta Ponsonby, Countess of Bessborough. Pre-eminent as social and political hostesses, these ‘leading ladies’ took a lively interest in the latest scientific developments. While at Lausanne, for example, Countess Spencer attended lectures on mineralogy and chemistry. The Duchess of Devonshire, who had a large mineralogical collection, spent time, while in Florence, with the distinguished chemists...

Table 3. The reformed RI lecture programme 1805–07 (two sessions). (Director of RI courses: Thomas Bernard. Descriptions and backgrounds of lecturers and professors are derived from ODNB (2004). n.k., not known.)

<table>
<thead>
<tr>
<th>lecturer/professor</th>
<th>course of lectures</th>
<th>no. of lectures, 1805–07</th>
<th>age (years)</th>
<th>description (1805)</th>
<th>background (father’s occupation)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Davy, H.</td>
<td>chemistry; geology</td>
<td>46</td>
<td>27</td>
<td>chemist</td>
<td>wood carver</td>
</tr>
<tr>
<td>Allen, W.</td>
<td>natural philosophy</td>
<td>57</td>
<td>35</td>
<td>chemist</td>
<td>silk manufacturer</td>
</tr>
<tr>
<td>Smith, (Sir) J.</td>
<td>botany</td>
<td>28</td>
<td>46</td>
<td>botanist</td>
<td>wool merchant</td>
</tr>
<tr>
<td>Shaw, Dr G.</td>
<td>zoology</td>
<td>24</td>
<td>54</td>
<td>natural historian</td>
<td>clergyman</td>
</tr>
<tr>
<td>Crotch, W.</td>
<td>music</td>
<td>38</td>
<td>30</td>
<td>composer, organist</td>
<td>carpenter</td>
</tr>
<tr>
<td>Crowe, Rev. W.</td>
<td>poetry</td>
<td>45</td>
<td>60</td>
<td>public orator</td>
<td>carpenter</td>
</tr>
<tr>
<td>Craig, W.</td>
<td>drawing</td>
<td>16</td>
<td>n.k.</td>
<td>painter</td>
<td>merchant</td>
</tr>
<tr>
<td>Landseer, J.</td>
<td>engraving (water colour)</td>
<td>4</td>
<td>40</td>
<td>engraver</td>
<td>jeweller</td>
</tr>
<tr>
<td>Opie, J.</td>
<td>painting</td>
<td>6</td>
<td>44</td>
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<td>mine carpenter</td>
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<tr>
<td>Guest, D.</td>
<td>fine arts in Spain</td>
<td>4</td>
<td>26</td>
<td>painter</td>
<td>watchmaker</td>
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<td>Smith, Rev. S.</td>
<td>moral philosophy</td>
<td>14</td>
<td>34</td>
<td>author and wit</td>
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<td>history of commerce</td>
<td>8</td>
<td>36</td>
<td>writer</td>
<td>clergyman</td>
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<td>Dibdin, Rev. T.</td>
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<td>22</td>
<td>29</td>
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</tr>
<tr>
<td>Hewlett, Rev. J.</td>
<td>belles lettres</td>
<td>16</td>
<td>43</td>
<td>biblical scholar</td>
<td>n.k.</td>
</tr>
</tbody>
</table>

The courses attracted a growing number of subscribers, and the mixed-sex audiences, a novel phenomenon of the RI, were commented upon in contemporary correspondence. The familial nature of the RI positively encouraged women, a select number of whom were requested to ‘keep books’ for recording personal recommendations of other members of their sex as potential subscribers. These included the spouses of Thomas and Scrope Bernard; Lavinia, Countess Spencer; and Earl Spencer’s sisters, Georgiana Cavendish, Duchess of Devonshire, and Henrietta Ponsonby, Countess of Bessborough. Pre-eminent as social and political hostesses, these ‘leading ladies’ took a lively interest in the latest scientific developments. While at Lausanne, for example, Countess Spencer attended lectures on mineralogy and chemistry. The Duchess of Devonshire, who had a large mineralogical collection, spent time, while in Florence, with the distinguished chemists...
Fabbroni and Fontana. The Duchess was also an early exponent of electro-therapeutics. Politically Whig, the stateswomen numbered Charles James Fox and the Prince of Wales among their friends. In 1806, a list of ‘ladies subscribing to the lectures’ included 495 names and addresses. Many can be identified as the wives and daughters of Board members and Patrons, together with family members of the Proprietors and subscribers such as bankers, clergymen, doctors, lawyers and Members of Parliament. Children also attended the Theatre, including the offspring of the Bernard brothers and the young Viscount Althorp.

Appointed Director of the RI Laboratory in 1805, Davy had at his disposal some of the best facilities for experimental research in Britain, complemented by a growing Mineralogical Collection. He was able to apply the different agencies of chemical analysis and to associate chemistry more closely with the new subjects of geology, mineralogy and metallurgy. Also Chemistry Professor to the Board of Agriculture, Davy had opportunities at the RI for the examination of soil and rock samples and was able to use a full range of analytical methods including the blowpipe, melting, solute or acid analysis, and early approaches to what would later be termed crystallography. Increasingly, he applied the RI battery, installed in 1803, as an agency of chemical analysis. It was by means of electrochemistry that he repeated the decomposition of water in 1806 and delivered his first Bakerian Lecture on ‘some chemical agencies of electricity’, an internationally acclaimed paper for which he was awarded Napoleon’s prestigious prize of 3000 francs. In the following autumn, Davy succeeded in isolating two new metallic elements, potassium and sodium. These decompositions, achieved by electrochemical analysis and announced in Davy’s second Bakerian Lecture, in November 1807, have long been recognized as among the greatest achievements in the history of chemistry, and marked a high point in the early history of the RI.

The ‘golden’ years were, however, short lived. After the second Bakerian Lecture, serious illness forced Davy to postpone his lecture courses, which partly explains the renewed financial difficulties experienced at the RI from the early months of 1808. The decline in annual subscriptions highlighted a number of systemic funding and institutional problems. Experimental science was becoming both more expensive and highly competitive, as demonstrated by rivalry between the leading chemists in London and Paris. Retrenchment did not, however, preclude support for developments that might enhance the scientific reputation of the RI. Thus, on 11 July 1808, the Committee of Managers approved a proposed subscription for a powerful galvanic battery designed for experimental research in the new department of electro-chemistry. The support pledged was personal to the managers, and not institutional, because the state of the RI’s finances prevented corporate investment towards apparatus estimated to cost in excess of the total value of all the laboratory apparatus. In addition, Board members were invited to provide an interest-free loan of £100 each. The acute financial difficulties are indicated by the expenditure for which the loans were used, such as the payment of Davy’s salary and the settlement of outstanding accounts for chemical materials. Piecemeal attempts to restore RI finances included the cancellation, pro tempore, of the foreign journals in the library and efforts to make the RI more attractive to ‘ladies’. An analysis of the various regulations for subscribers was undertaken by Davy, and it became his responsibility to see that the modified terms were inexpensively advertised in a number of journals.

The installation of the new battery, and a renewed interest in the future of the RI by a number of titled Proprietors, prompted a re-evaluation of the potential of chemical analysis
and the rewards of consultancy using the services of Davy, the facilities of the Laboratory and the Mineralogical Collection. Several Proprietors had served in government and were connected with the Departments of State. Official invitations from the RI to the various government Boards suggested the advantages that might accrue from establishing advisory joint committees of experts, one response contrasting the benefits of public science at the RI with the limitations of the private laboratories.78

THE INSTITUTIONAL REFORMERS

By March 1809 it was clear that efforts to restore the RI’s finances had failed, and the Committee of Managers advised the Visitors, who reported annually to the body of Proprietors, of the near impossibility of continuing without radical institutional reform.79 The main reform, to alter the foundation of the RI from a body politic based on hereditary proprietorship into a corporation of members, although approved in principle, took months of detailed negotiation to satisfy all the parties. The mode finally adopted to revise the original charter and to radically alter the structure and managerial composition of the RI was the successful promotion of a Bill in Parliament (1810). Whether the changes were granted from above by an aristocratic and agrarian class, whose names figured prominently in the 1807 list of Proprietors, or were the work of a reform group motivated by enlightened self-interest, several key features of the reformed internal government nevertheless endured for upwards of two centuries.

Institutional reform of an evolutionary nature required the support of the principal officers and a hard core of RI managers such as Bernard and Spencer, whose breadth of vision and interests could readily encompass the Library, the Laboratory and the Theatre. Spencer attended Davy’s lecture courses in chemistry and was one of the few managers, alongside Lord Dundas, Bernard and Hatchett, who redeemed his pledge to finance the great battery.80 Timothy Brent, identified among those reformers classified as ‘Establishment and Officers’ (table 4a), had expressed an inclination to serve as the first RI secretary. Subsequently, ‘on account of his situation in the Prince’s Service he was obliged to decline it’.81 His loyalty to the Prince of Wales did not, however, prevent him from acting as a Visitor and a Library Patron (table 2).

At times of acute crisis, or when changes were required to the bye-laws under the original RI charter, recourse was had to a device not uncommon in corporate business whereby the managers and visitors met with a committee of Proprietors, who represented the shareholders selected at a special general meeting.82 In May 1809 it was decided to constitute such a joint committee of managers, visitors and chosen Proprietors to plan for institutional reform. Central to the reform proposals were adjustments to the rights of property and hereditary succession, and it fell to the joint committee to persuade the whole proprietary body, upwards of 400 shareholders, together with a similar number of Life Subscribers, that their existing rights would be protected. Concurrently, opportunities arose for a transformation of internal governance from what was, in effect, a largely self-perpetuating oligarchy into a more open and responsible system with implications for the development of an administrative framework within which experimental science could be conducted.

Three members of the joint committee acted as spokesmen for the Proprietors. These were Edward Forster, an Anglican clergyman, and two Catholics, Sir Henry Englefield and Robert Clifford. Forster, a member of the literati noted for his illustrated editions of *Don Quixote, The Arabian nights* and *The British gallery of engravings*, had presented the RI Library with a valuable collection of books in 1804 and lectured in the Theatre on
Table 4. The RI establishment and the institutional reformers. (This analysis focuses on the contributions made to the RI by those personalities who were associated with the promotion of the 1810 Act of Parliament and who were subsequently involved in the framing of the bye-laws and were elected to the scientific committees, and who supported, in 1814, a subscription for the continuance of the RI.)

<table>
<thead>
<tr>
<th>name</th>
<th>description</th>
<th>before 1810 Act a</th>
<th>after 1810 Act b</th>
</tr>
</thead>
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<tr>
<td></td>
<td>LP SCC subs 1804–09 BL (no.) committees ca. 1810 – ca. 1814 1814 sub.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Winchilsea, Earl</td>
<td>President 1801–13</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Bernard, T</td>
<td>Vice-President</td>
<td>✓ ✓</td>
<td>LMB 1 1</td>
</tr>
<tr>
<td>Spencer, Earl</td>
<td>President 1813–25</td>
<td>✓ ✓</td>
<td>LB</td>
</tr>
<tr>
<td>Auriol, J. P.</td>
<td>RI secretary</td>
<td>✓</td>
<td>L 1</td>
</tr>
<tr>
<td>Bernard, S.</td>
<td>RI treasurer; MP</td>
<td>✓</td>
<td>L 0</td>
</tr>
<tr>
<td>Brent, T.</td>
<td>visitor</td>
<td>✓</td>
<td>L 2+3ch</td>
</tr>
<tr>
<td>Dundas, Lord</td>
<td>manager</td>
<td>✓</td>
<td>bMB 0 clm</td>
</tr>
<tr>
<td>Hippisley, J. C.</td>
<td>manager; MP</td>
<td>✓</td>
<td>Lb 0 1</td>
</tr>
<tr>
<td>Hatchett, C.</td>
<td>management</td>
<td>✓</td>
<td>LB</td>
</tr>
<tr>
<td>Watson, W.</td>
<td>manager</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Forster, E.</td>
<td>writer</td>
<td>✓</td>
<td>b 5 lm</td>
</tr>
<tr>
<td>Englefield, H.</td>
<td>antiquary; scientific writer</td>
<td>✓</td>
<td>MB 2ch clm</td>
</tr>
<tr>
<td>Clifford, R.</td>
<td>mineralogist</td>
<td>MB 5</td>
<td>clm</td>
</tr>
<tr>
<td>Davy, H.</td>
<td>chemist; inventor</td>
<td>MB 3</td>
<td>cm</td>
</tr>
<tr>
<td>Warburton, H.</td>
<td>philosophical radical</td>
<td>B 2</td>
<td>cl</td>
</tr>
<tr>
<td>Stodart, J.</td>
<td>cutler; instrument maker</td>
<td>B 1</td>
<td>cm</td>
</tr>
<tr>
<td>Pepys, W. H.</td>
<td>instrument maker</td>
<td>✓</td>
<td>B 0 c</td>
</tr>
<tr>
<td>Stracey, E.</td>
<td>banker</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>

(a) RI establishment and officers

(b) the ‘institutional reformers’

aAbbreviations: LP, RI Library Patron (table 2); SCC, Members of Committees of Natural Philosophy, Chemistry and Science (table 1). Under the heading ‘subs 1804–09’: L, Library subscription 1804; b, books subscribed 1804; M, mineralogical subscription 1804; B, battery subscription 1808–09.

bAbbreviations: BL (no.), number of attendances at Bye-Laws Committee 1810; ch, served as chairman of Bye-Laws Committee. Under the heading ‘committees ca. 1810 – ca. 1814’ (indicating elected to committees set up under the bye-laws): c, chemistry; l, literature; m, mechanics. 1814 sub., contributed to RI subscription of 1814.

A range of subjects including the history of commerce, oratory and poetry. Both Englefield and Clifford had supported the development of the Mineralogical Collection. It was Clifford who proposed that Davy be invited to join the committee working for institutional reform (table 4b).

Another institutional reformer was Henry Warburton, son of a London timber dealer, who succeeded to his father’s business and to his proprietary share in the RI in the early months of 1808. A graduate of Cambridge, where his ability in science and chemistry had been recognized, Warburton made a substantial financial contribution to the battery subscription and became one of Davy’s circle of close friends. Described by Davy as being characterized by ratiocination, ‘Philosopher Warburton’ later became a well-known radical who pioneered medical reform and was active in promoting the new University of London. An early RI subscriber was the utilitarian Jeremy Bentham, although there is no direct evidence, so far, to link him directly with those seeking to effect institutional change.
Proposals on the reformed structure of RI governance were submitted by several interested parties, including Brent, Englefield, Clifford, Davy and James Perry, a radical Whig journalist and proprietor of the *Morning Chronicle*.

The specific contributions of individual reformers can be followed in the documentation associated with the RI Bill, the minutes of the Committee of Managers and in the framing of the new bye-laws consequent upon obtaining statutory authority (table 4). A notice about the proposed changes, published in the *Annual Register*, has been attributed to Davy but is more likely to have been the work of Forster, who subsequently proposed that these should constitute distinct clauses in the Bill. The nomenclature suggested a council of managers and a committee of visitors, each with 15 members of whom eight, a majority, would retire each year. The notice also included calculations of projected membership numbers yielding an annual income in excess of £3000. Englefield’s distinct contribution to reform was the adoption by the Board of a draft clause in the Bill that vested the right of initiating changes to the bye-laws in the proposed monthly meetings of members. After six months of negotiation, the joint committee was ready to recommend the necessary statutory amendment of the original RI charter and to solicit a substantial number of Proprietors to support the Bill in Parliament.

From its inception the RI had attracted a high proportion of MPs. Of the first 58 Proprietors, no fewer than 18 (31%) were sitting MPs. The published list of Proprietors in 1807 included 33 MPs, together with many titled Proprietors whose interests permeated both Houses of Parliament, thus ensuring the easy passage of the Bill. The support of Sir John Sinclair, President of the Board of Agriculture, accords with an interpretation that accepts a predominant role for an ‘agricultural’ interest at the RI. However, it underplays the contribution of other Parliamentarians, including Sir James Graham and Benjamin Hobhouse, a manager who had long been on the fringes of the RI reform group. Davies Giddy (later Gilbert), Davy’s first patron and a member of the House of Commons committee, built up a reputation for promoting the interests of science and education in Parliament. He succeeded Davy as President of the Royal Society in 1827. On 3 March 1810, Davy lectured at the RI on the implications of the proposed legislation. In an address directed principally at the Life and Annual Subscribers, including female subscribers, he emphasized the experimental sciences, chemistry and the Laboratory with its powerful battery.

The RI Bill received the Royal Assent on 18 April 1810, with opportunities, under the Act, to construct a framework for institutional governance and the administration of its scientific activities. Of those members of the joint committee nominated on 7 May to draw up the bye-laws, seven, including the RI President, made no appearance at the five recorded committee meetings. Three others, including Bernard, attended only once. The drafting of the bye-laws was mainly the work of Brent, Forster, Clifford, Davy, Englefield and Warburton (table 4). A distinction can be drawn between the Library’s interests on the one hand and the Laboratory’s interests on the other. The Library Patrons, who neither contributed to Davy’s battery subscription nor served on the later Committee of Chemistry, Geology and Mineralogy, were principally represented by Edward Forster, sometime honorary RI Librarian. However, consideration of the institutional reformers indicates Davy’s strong position on the bye-laws committee, whose members had, with the exception of Forster, supported the battery subscription and had subsequently become members of the new Committee of Chemistry. Consequently, the ideas of Davy and Clifford concerning the administration of experimental science could henceforth be discussed by a supportive committee.
The RI bye-laws, set out in 22 chapters and 153 articles, referred to three different ‘provinces’ of scientific activity that were to be given institutional form in separate committees. These were Chemistry (chemistry, geology and mineralogy), Mathematics (mathematics, mechanics and mechanical inventions) and General Science (general science, literature and the arts). It had originally been expected that the committees would be appointed by the managers, but the final bye-laws provided for annual elections by RI members. Each of the elected committees, which might include the professors and lecturers (if members), would comprise 25 members, namely 10 new members alongside 15 who would be nominated to continue in place, an annual turnover of 40%. Research was to be scientifically informed, Davy maintaining that ‘attempt at original experiment, unless preceded by knowledge, merely interferes with the progress of discovery’. Thus, access was had to external experts, committee members could borrow books from the RI Library for use during meetings, and recent British and foreign journals could be consulted. References relevant to each ‘province’ were noted and subjects for investigation were proposed. These might come from the Committee of Managers or from the monthly meetings of members. It was also proposed to re-institute a regular RI publication.

The fellowship of the open laboratory

The elaborate framework for the administration of experimental science proved problematic to operate. The minutes of the Committee of Managers indicate that the reformers, particularly Clifford and Davy, wanted the bye-laws to be followed assiduously. Balloting lists of nominees for the three scientific committees were circulated to RI members. An analysis of the elected Chemistry Committee in the years 1810–15 indicates that most members were practising chemists or physicians, had been elected FRS and were members of the Geological Society (later ‘of London’). Members included the mineralogist James Smithson, whose bequest later founded the Smithsonian Institution, and Banks, who had rejoined the RI in the wake of the 1810 Act. Undoubtedly, the RI hoped to raise its profile and attract support through the inclusion of prominent names on its committees. The General Science Committee, for example, was chaired by Lord Holland, a leading Whig politician and man of letters, whose house in Kensington was one of the most brilliant centres of political and literary society in all of Europe. Also on the committee were the barrister Daniel Moore, who was the RI’s legal adviser, the Unitarian minister and reformer John Disney, and the news proprietor James Perry.

At a time when many chemists had commercial interests or patent rights, and were protective of their private laboratories, the openness with which research was performed at the RI is noteworthy. The basement Theatre was designed to foster expert witness and experiments in fellowship among ‘the men of science’. Indeed, John Davy commented on his brother’s ‘open laboratory’ when he took up residence in the House in 1808. Even the written log or laboratory notebook was open to comment, as still demonstrated in the ink-stained and sometimes illegible scrawl of the extant archive. In many respects the new bye-laws formalized the existing situation of the open laboratory, although Davy insisted, ‘No experiments are to be made or carried on in the laboratory without the consent and approbation of the Professor of Chemistry.’

Practical research in the Laboratory can be demonstrated from an entry in William Allen’s diary:
Experiments for the preservation of meat were useful and likely to appeal to Earl Spencer, a former First Lord of the Admiralty, and to Banks, who had an interest in the commissioning of long-distance voyages. It was also of immediate relevance to the warring nations of Europe.

In July 1813 a group of 38 chemists assembled at Ferox Hall, Tonbridge, the home of George Children, a banker and early electrician, and his son John George Children, recently elected Chairman of the RI Chemistry Committee. In the weeks before the meeting, Davy had corresponded with Children on the experiments that might be conducted. What has not been recognized so far is that those who attended were, in almost all instances, members of the RI Committee of Chemistry. The gathering was called to conduct melting and fusion experiments, for example on the recently isolated element of iridium, using a large plated battery in the galvanic laboratory at Ferox Hall. On 2 July, after dining, the chemists held a ‘committee meeting’, which did not break up until the early hours of the following day. Although the experiments were not completely successful (several were repeated in the Ferox Hall laboratory in 1815), several of the chemists, for example William Hyde Wollaston, were able to suggest modifications to the apparatus, thus illustrating something of the benefits of collaborative or ‘open’ science. The Ferox Hall meeting was, in effect, held in accordance with the bye-laws under the RI Act.

The procedures set out in the new bye-laws had also been followed earlier when, in 1812, Davy had resigned his resident professorship at the monthly meeting of RI members, chaired by Earl Spencer. The meeting, having accepted his resignation, had appointed him to an honorary position and nominated William Thomas Brande as his successor. In the months preceding Davy’s resignation, Charles Hatchett had assiduously promoted the career advancement of Brande, his former assistant and future son-in-law.

In 1815 a committee was set up to review the bye-laws ‘and other matters respecting the state of the Institution’. A report, presented in February 1816, proposed the deletion of the chapter of the bye-laws relating to the elected scientific committees, that ‘without producing its intended purposes, has always been attended with expense and inconvenience.’ A new bye-law was substituted:

The Managers shall appoint any Committees that they may think necessary for promoting the Scientific objects of the Institution—and Committees for specific purposes may be appointed by a Vote of the Members at any General or Monthly Meeting.

The report, signed by Earl Spencer (the RI President) and Davy, marked the end of the elected scientific committees. In many respects it also marked the end of Davy’s first phase as an institutional reformer.

**LIBRARY AND LABORATORY: UPSTAIRS AND DOWNSTAIRS**

Distinct Library and Scientific Establishments, which had been recognizable features in Bernard’s plans for the RI in 1803, were demonstrated in 1810 in two separate chapters of the bye-laws. The Libraries and Mineralogical Collections (chapter 20) reiterated the regulatory powers and privileges of the Patrons, that ‘all Sums subscribed to the Library or
Mineralogical Collection shall be under the direction of the Patrons’. In addition, a sum of £50, which might be renewed from time to time, was placed at the disposal of the Library. Most significantly, the bye-laws stipulated (chapter 2) that RI members should, on admission, pay 5 guineas to the Library Fund. In contrast with the quasi-autonomy of the Library, The Laboratory, Apparatus and Model Room (chapter 21) remained ‘under the direction and government’ of the Committee of Managers.\textsuperscript{107}

The distinction between the Library and the Laboratory was also apparent in the contrast between the personalities attached to each Establishment. In 1804 William Harris was appointed Librarian, and under his direction the RI Library flourished. His approach was meticulous and in 1809 he produced a comprehensive Library catalogue, described as ‘methodically arranged’, which went into a second and enlarged edition in 1821.\textsuperscript{108} The Journal of the Royal Institution, however, for which Davy had shared publishing responsibilities, ceased in 1803. According to Count Rumford, Davy’s ‘natural disposition [is] to be idle and to procrastinate’, personality traits demonstrated in the disordered state of his extant laboratory notebooks and in descriptions of the Laboratory.\textsuperscript{109} However, Davy’s successes in the Laboratory had enhanced the RI’s scientific reputation. He was a secretary of the Royal Society and had editorial responsibilities for Philosophical Transactions. Within the RI the two men seem not to have espoused each other’s interests. There is no record of Davy’s having contributed towards the Library nor of Harris’s having supported the great battery. Davy’s request that a small selection of geology books be transferred from the Library to the Mineralogical Collection was refused, although the Committee of Managers agreed that a small sum should be made available for Davy to purchase the titles.

The domestic arrangements within the House were scarcely conducive to intramural harmony. Davy, housed in the upper rooms of the RI, was, over time, joined by his cousin Edmund and his brother John. The Committee of Managers also made provision for the accommodation of Harris and members of his family. Thus it was that the domestic arrangements of the upper apartments and garrets of the House were shared by the meticulous Librarian and the disordered but brilliant Professor of Chemistry, together with several of their family members and associates. It is also likely that any difficulties in personal relationships were accentuated by differences in status, professional standing and salary. As resident Professor, Director of the Laboratory and sometime Superintendent of the House, Davy received an annual salary of £400. The remuneration of Harris, as Librarian and sometime assistant Superintendent, was £180. In contrast, assessments of the fixed assets of the RI decidedly favoured the Library, as can be seen from a valuation of 1807–08 undertaken by Harris and the architect John Soane (table 5).

Animosity between the Librarian and the Scientific Establishment can be discerned in the events following the resignation of Davy and the appointment of Harris as Superintendent of the House in 1812.\textsuperscript{110} Almost immediately, Davy’s cousin Edmund was directed by Harris, in accordance with the bye-laws, to prepare an inventory of the Laboratory, to report his progress on the catalogue of the Mineralogical Collection and to say ‘when it was expected to be finished’.\textsuperscript{111} Over the following months, Harris brought increasing pressure to bear on Edmund, who, when his duties were revised, promptly resigned.\textsuperscript{112} In February 1813, when Harris intervened in a violent altercation in the Theatre, his ‘blowing’ to the managers resulted in the dismissal of one of the assistants, who nevertheless received a gratuity of £10 ‘in consideration of his long service’. As a replacement, Davy brought in Michael Faraday, whose contests with Harris and his niece over accommodation are well documented. In 1823,
having served the RI for more than 20 years, Harris was dismissed as Librarian ‘on Account of the low state of Finances of the Institution’. 113

FUNDING AND SEPARATE DEVELOPMENT

The transformation of the RI from a body corporate into a corporation of members had failed to resolve the financial difficulties, and in 1814 a new subscription was launched in order that it might continue. The published list was headed by the new President, Earl Spencer. 114 As previously, landed Proprietors with metropolitan residences, together with London bankers and art connoisseurs, who had long served as Library Patrons, continued to support the RI. Of the newer supporters may be noted John Fuller, a wealthy industrialist, plantation owner and eccentric MP; Daniel Moore, a philanthropic lawyer with a keen interest in astronomy; and a growing number of the professions. Over the coming years the RI would, from time to time, be dependent on the wealth of such patrons (table 6).

By the early 1820s it was recognized that the Laboratory might best be supported with a separate fund ‘to insure its practical efficiency without rendering it too burthensome to the rest of the Establishment’. An elaborate subscription was organized through voluntary loans, donations and compositions while the whole RI membership was canvassed for annual contributions of one guinea. In the published list were names that had been associated with the RI for almost a quarter of a century as well as those of a new generation. It included Earl Spencer and his son Lord Althorp, Scrope Bernard and his son Francis Bernard, several Library Patrons and at least one member of the original Chemistry Committee, Charles Hatchett. Significantly absent from the RI Laboratory Fund was the name of the new President of the Royal Society, Sir Humphry Davy. 115

CONCLUSION

Support for a voluntary scientific, artistic or educational institution may be demonstrated in various ways, some of which can be quantified and measured. These include membership, propensity to hold office at management or committee level, contributions to institutional subscriptions, attendance at lectures, and support for a range of institutional facilities. This paper has examined the multifaceted nature of the RI in its early years, and its concurrent activities. The House had many features and areas, of which the Laboratory, the Library and
Table 6. The metropolitans: 1814 subscription to the RI. (The heading ‘fine arts’ indicates a clear association with bodies such as Royal Academy, Society of Antiquaries or British Institution of Fine Arts (founded by, among others, Thomas Bernard in 1805). Abbreviations under the heading ‘RI Library Patrons and subscribers’: LP, s, number of Library Patrons and subscribers to the RI Library who contributed to the 1814 subscription. Abbreviations under the heading ‘RI committees elected (1810–14)’: c, Committee of Chemistry, Geology and Mineralogy; m, Committee of Mathematics, Mechanics, Mechanical Inventions; l, Committee of General Science, Literature, Arts. Entries in the category ‘not located by background or occupation’ were mainly subscribers of small sums (usually 5 guineas each). The category included authors such as Isaac D’Israeli (father of Benjamin Disraeli); the proprietor of the Morning Chronicle, James Perry; the printer and MP Andrew Strahan; the poet William Sotheby; and the playwright Prince Hoare. Other MPs in this group included Henry John Temple, 3rd Viscount Palmerston, who was Secretary at War (1809–28) and would later serve as Prime Minister. Entries by ‘independent (geological)’ had no obvious occupation or background but were active members (officers) of the Geological Society of London.)

<table>
<thead>
<tr>
<th>group category</th>
<th>no. in group</th>
<th>subscription (to nearest £)</th>
<th>political, MPs, etc.</th>
<th>RI Library Patrons and subscribers</th>
<th>RI committees elected (1810–14)</th>
</tr>
</thead>
<tbody>
<tr>
<td>landed Proprietors with London residence</td>
<td>25</td>
<td>312</td>
<td>17</td>
<td>11</td>
<td>15</td>
</tr>
<tr>
<td>merchants and banking</td>
<td>27</td>
<td>292</td>
<td>16</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>legal profession</td>
<td>13</td>
<td>146</td>
<td>8</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>clerical profession</td>
<td>12</td>
<td>88</td>
<td>5</td>
<td>–</td>
<td>7</td>
</tr>
<tr>
<td>medical profession</td>
<td>12</td>
<td>78</td>
<td>4</td>
<td>–</td>
<td>3</td>
</tr>
<tr>
<td>entrepreneurs</td>
<td>7</td>
<td>53</td>
<td>3</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>chemists</td>
<td>3</td>
<td>42</td>
<td>2</td>
<td>–</td>
<td>1</td>
</tr>
<tr>
<td>independent (geological)</td>
<td>5</td>
<td>37</td>
<td>2</td>
<td>–</td>
<td>2</td>
</tr>
<tr>
<td>army (retired)</td>
<td>4</td>
<td>32</td>
<td>2</td>
<td>1</td>
<td>–</td>
</tr>
<tr>
<td>official post holders</td>
<td>4</td>
<td>31</td>
<td>2</td>
<td>–</td>
<td>1</td>
</tr>
<tr>
<td>architects/surveyors</td>
<td>3</td>
<td>26</td>
<td>1</td>
<td>–</td>
<td>3</td>
</tr>
<tr>
<td>women</td>
<td>5</td>
<td>26</td>
<td>1</td>
<td>2</td>
<td>–</td>
</tr>
<tr>
<td>not located by background or occupation</td>
<td>97</td>
<td>665</td>
<td>37</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>total</td>
<td>217</td>
<td>1828</td>
<td>100</td>
<td>36</td>
<td>63</td>
</tr>
</tbody>
</table>

the Theatre were the most significant. Each had its supporting, and sometimes overlapping, interests and administrative structures. By the 1820s both the Library and the Laboratory exhibited many of the characteristics that suggested they were quasi-autonomous entities within the RI.116

In examining the underlying social structure of the RI, this paper has shown that a proposition can be made for thinking in terms of ‘metropolitan’ interests for what was a metropolitan institution. Alongside landed Proprietors with both London and provincial residences, bankers and professionals were strongly represented. Many of the metropolitans (table 6) were devoted as much to the fine arts and literature as they were to the experimental sciences. In an age of shifting political allegiances and party alliances, often marked by
personal jealousies and animosities, there are dangers in making sweeping generalizations. Nevertheless, a detailed analysis of the personalities who directed or influenced the RI in the context of contemporary politics suggests that, on the dividing issues of the day, the institutional reformers were Whiggish, often sympathetic to Catholic relief and, in the warring camps into which the British royal family were divided, fitted more readily into the ‘party’ of the Prince of Wales, the RI numbering one of the many societies and institutions he espoused.

Davy had high expectations of the RI and was keen to promote its interests. This was undoubtedly a factor in his rapid career development and in his involvement in institutional reform. He enhanced his own status and, in an age of patronage and preferment, successfully secured the support of ‘the men of science’, progressing from assistant lecturer to honorary professor and Vice-President.\textsuperscript{117} This paper has shown that Davy operated within a management and committee framework and that he played an active role in attempts to reform the RI before, during and after the promotion of the legislation of 1810. At the same time, his experience of ‘expert’ committees had been further developed through, for example, his nomination, alongside a small group of distinguished chemists and geologists, to value a mineral collection with a view to its purchase by the British Museum in 1810. Thus, by the time of his election to the presidency of the Royal Society in 1820, Davy had experienced varieties of internal governance both at the RI and elsewhere, including appointed and elected scientific committees. If his years as President of the Royal Society (1820–27) have been judged a period of wasted opportunity for England’s premier scientific institution, it can scarcely be attributed to Davy’s lack of experience as a reformer. Rather, other factors, including those of personality, came into play within a very different institutional context and culture, consideration of which is beyond the scope of this paper.

The study has also demonstrated the roles of personalities and groupings about which too little has previously been written. Earl Spencer, Chairman of the Patrons, later RI President and devotee of both the arts and experimental sciences, was able to employ his breadth of vision on several crucial occasions. Interestingly, among the institutional reformers were two Catholics, Robert Clifford and Sir Henry Englefield. Both were Cisalpines, a group of Catholics who had identified themselves with Enlightenment and reform, with the Continental democratization of churches and with the Rational Dissenters at home.\textsuperscript{118} Friendship with Englefield, and association with Clifford in the short-lived experiment with elected scientific committees, may have been reflected in Davy’s sympathetic attitude towards Catholic Emancipation. Clearly, alongside a core of dedicated managers, among whom (Sir) Thomas Bernard was paramount, a determined group of institutional reformers was at work, seeking to develop the RI in new directions that included the annual election of a high proportion of managers and a framework of bye-laws that vested considerable powers in the monthly meetings of members. Although the complex arrangements for elected scientific committees were swept away within five years of the 1810 Act, the monthly meetings of members persisted until 1998.

\textbf{Acknowledgements}

The authors gratefully acknowledge the assistance of Dr F. H. Willmoth, Archivist, Jesus College, Cambridge, and of Jacky Cox, Deputy Keeper of the University Archives, Cambridge.
Humphry Davy and the Royal Institution

NOTES

1 7 March 1799 Meeting at the Soho Square house of Sir Joseph Banks, President of the Royal Society of London. Proposal agreed for ‘Institution for diffusing the Knowledge, and facilitating the general introduction, of Useful Mechanical Inventions and Improvements; and for teaching, by Courses of Philosophical Lectures and Experiments, the application of Science to the common purposes of life’. Royal Institution Managers’ Minutes (RIMM).

2 British Library, London. BL. 1889.e.11.


5 The original bye-laws were largely drawn up by Sir Joseph Banks, President of the Royal Society; Sir Richard Joseph Sullivan, writer and MP; and a politician, Sir John Coxe Hippisley, ‘with (Count) Rumford only serving to get in the way’. Berman, Science and society, op. cit. (note 3); Royal Institution Managers’ Minutes (RIMM), 29 June 1799.

6 RIMM, 31 March 1800. It was decided that 14 committees should be appointed for specific investigations into such areas as breadmaking, cottages, and kitchen utensils.

7 Sir Benjamin Thompson, Count Rumford in the nobility of the Holy Roman Empire (1753–1814), natural philosopher and philanthropist. Thompson was reared in Massachusetts and attended some lectures at Harvard but never matriculated.


9 ODNB (2004). Entry for Sir Thomas Bernard, second baronet (1750–1818). Like Rumford, Bernard spent his early years in British North America, where his father was colonial governor of Massachusetts. He was educated at a private school in New Jersey and commenced studies at Harvard University. He was treasurer of the London Foundling Hospital from 1795 to 1806. Bernard succeeded to the baronetcy in 1810.

10 Frank A. J. L. James et al., ‘Constructing space for science at the Royal Institution of Great Britain’, Phys. Perspect. 9, 130–185 (2007) provides the most recent study of the RI’s spatial arrangements.

11 ‘Count Rumford was spoken of as having quitted the Royal Institution where he had made himself very disagreeable by his violent and overbearing manners.’ The diary of Joseph Farington RA, 1793–1821 (ed. K. Garlick, A. MacIntyre and Katherine Cave) (Yale University Press, New Haven, CT, 1978–99). Entry for 1 March 1804.

12 ODNB (2004). Entry for Thomas Webster (1772–1844), geologist. Count Rumford had asked Webster to establish an artisans’ school at the RI. Bence Jones, op. cit. (note 3), p. 194. According to Webster there was concern about instructing the lower classes in science because ‘it was thought to have a dangerous political tendency’.
13 Webster’s departure was attributed to reasons of health. RIMM, III, 8.
14 RIMM, 17 January 1803.
15 RIMM, 20 December 1802.
16 RIMM, 31 March 1800.
17 A syllabus of a course of lectures on chemistry delivered at the Royal Institution of Great Britain (Royal Institution Press, London, 1802).
21 RIMM, 7 September 1801.
24 RIMM, 31 May 1802. Gillray’s caricature was published on 23 May 1802.
25 Davy was recommended for election as FRS on 21 April 1803 and was elected on 17 November 1803.
26 RIMM, 26 April 1803; Chilton and Coley, op. cit. (note 3), pp. 175–176.
28 William Savage received 25 shillings per week for undertaking the duties of assistant Librarian, printer, clerk and caretaker. RIMM, 16 March 1801.
29 RIMM, 21 March 1803. ‘Outline of Plan for Collection of Books…’.
31 BL. 1889.e.11., op. cit. (note 2).
32 Earl Spencer was a regular auditor at Humphry Davy’s lectures. Life and letters of Sir Gilbert Elliot, first Earl of Minto 1751–1806 (ed. Countess of Minto) (London, 1874), vol. 3, p. 240.
33 RIMM, May 1799. ‘Agriculture and Natural History not to be considered appropriate subjects for study or discussion.’
34 H. Davy, A Lecture on the plan … for improving the Royal Institution … March 3, 1810.
37 James, op. cit. (note 3), p. 2. Davy to Gilbert (Giddy), 8 March 1801.
39 Dawson, op. cit. (note 36).
40 RIMM, 28 November 1803; Annual Report (to 31 December 1803).
41 RIMM, 23 January 1804.
43 Hippisley spoke annually in the House of Commons on Catholic relief; in 1806 he published Observations on the Roman Catholics of Ireland. ODNB (2004).
45 RI Archives. List of the Subscribers to the Library of the Royal Institution of Great Britain; Subscription to the Mineralogical Collection and Office of Assay. 10 June 1804.
46 RIMM, 20 May 1805.
Garlick et al., op. cit. (note 11). Entry for 19 July 1806.

RIMM, 16 January 1804.


Fuller, op. cit. (note 22), p. 46.

RIMM, 2 June 1804.

‘That Mr Davy have permission to admit six Subscribers as private Pupils in the Laboratory in the manner proposed in his letter.’

RIMM, 18 June 1804.

D. Knight, Humphry Davy: science and power, 2nd edn (Cambridge University Press, 1992), p. 16: ‘... in 1804, he [Davy] was to register at Jesus College, Cambridge, for a medical course’.

Davy was present for his admission as a Fellow Commoner (3 July 1804) but there is no evidence to indicate that he stayed at Jesus College for any length of time.

Davy’s principal sponsor was a Fellow of Jesus College, Edward Daniel Clarke (1769–1822), a mineralogist and conductor of chemical experiments, who later became professor of mineralogy.


Fuller, op. cit. (note 22), pp. 47 and 50.

RIMM, 21 January 1805.

ODNB (2004). Entry for William Pearson (1767–1847), astronomer. Before he commenced his lectures at the RI, John Dalton was given access to Pearson’s planetarium. RIMM, 2 January 1804.


For example, Sir Gilbert Elliot noted of Davy’s lectures (27 February 1802), ‘... there are a great many women, principally matrons with young daughters, who take notes and carry their syllabus ...’. Countess of Minto, op. cit. (note 32).

RIMM, 17 February 1800. Part of the responsibilities of the ladies was ‘to preclude the possibility of any improper Female name being found among the subscribers’.

Dawson, op. cit. (note 36), pp. 78–79. Sir Charles Blagden to Sir Joseph Banks, 5 September; 28 December 1792. Other ladies who kept books for the RI included the travel writer Sarah Murray Aust (1744–1811) and Lady Amabel Hume-Campbell (1751–1833), a political writer who described herself as ‘an old English Whig’.

One example of an MP sending his young family to the RI lectures was Reginald Pole Carew. When his wife died in 1804, Carew was left with nine children, seven of them girls and several of whom appeared on the 1806 list of ‘ladies subscribing to the lectures’.

RIMM, vol. 3, p. 5.

RIMM, 4 February 1805.


In 1807–08 the income of the RI fell from £4141 to £1560. Bence Jones, op. cit. (note 3), Appendix III, p. 425.


RIMM, 20 June 1808. Managers and visitors made loans without interest.

RIMM, 11 July 1808.

RIMM, 24 October – 7 November 1808.

RIMM, 28 November 1808. The Committee of Managers was chaired by Earl Spencer.

RIMM, 3 and 10 April 1809. ‘Notice of benefits of the Royal Institution Laboratory’.
RI Archives: Box File IIA, Item 81. ‘Subscription for constructing A Voltaic Apparatus on a Great Scale for pursuing New Researches in Chemistry and Natural Philosophy.’

RIMM, 30 March and 6 April 1799. On 26 March 1823 George IV referred to Timothy Brent as ‘one (of) my best and most meritorious servants; to his zeal & services I am much indebted.’ Aspinall, op. cit. (note 38), Letter 3427 note.

RIMM, 8 May 1809.


RIMM, 5 July 1809. ‘… moved by … Clifford. … Resolved unanimously that Mr Davy be invited to give his attendance and assistance at this (Joint) Committee.’


Jeremy Bentham’s name is recorded in the List of Life Subscribers to the Royal Institution of Great Britain, 1 May 1801.


Annual Register 51, 822–826 (1809).

RIMM, 5 February 1810. Clauses submitted by Edward Forster and Sir Henry Englefield for insertion in the proposed Bill. Forster was added to the small committee appointed to prepare the Bill.

BL. 740. A.7. A list of the proprietors … April 1807.

House of Commons Journals, 8 February and 15 March 1810.


Davy, op. cit. (note 34).


In 1810 (Sir) Thomas Bernard succeeded to the baronetcy. Shortly afterwards he resigned from the RI Board.


RI Archives. Guard Book 1.

RIMM, 14 January and 29 April 1811.

Holland was a sympathizer of Catholic emancipation and political reform. His wife, Elizabeth Vassall (Lady Holland), a patron of Sidney Smith, had displayed an interest in science from her early years and is credited with introducing the dahlia to England.

RI Archives, Humphry Davy’s laboratory notebooks. Entry for 10 August 1810.

Life of William Allen, op. cit. (note 23), vol. 1, p. 131. In 1810–11 Sir Joseph Banks was in correspondence with several European researchers who were examining ‘the efficacy of the new methods of preserving food’. Dawson, op. cit. (note 36), pp. 358, 620 and 868.


RI Code, op. cit. (note 96), Art. 12. ‘The Committees … may continue or adjourn their Meetings as they think proper …’.


RI General Monthly Meeting of Members, 5 June 1815.

RI General Monthly Meeting of Members, 5 February 1816.

RIMM: The Bye-Laws (1810).

A Catalogue of the Library of the Royal Institution of Great Britain. Methodically arranged, with an alphabetical index of authors, by W. Harris (1809). BL. 620.g.18. (Second edition 1821. BL. 11903.h. 12/13.)


RIMM, 6 July 1812. Mr Harris appointed Superintendent of the House until further orders. The servants were to obey Harris’s instructions and his duties were to see ‘that everything is kept in a regular and proper state’.

Life of William Allen, op. cit. (note 23).
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111  RIMM, 3 August 1812.
112  RIMM, 7 December 1812.
114  RI Archives. Guard Book 1. Printed list of subscriptions (November 1814).
117  Fullmer, op. cit. (note 4). Fullmer concentrated almost entirely on Davy’s efforts to refashion the conceptualizations at the heart of chemistry, and on his largely abortive attempts to redirect the Royal Society.