The Royal Institution
20 and 21 Albemarle Street
London

Building Conservation Management Plan

Contents

1. Executive summary

The Building Conservation Management Plan for the Royal Institution provides a comprehensive framework for the preservation, management and future development of its historic Grade I listed buildings at 20 and 21 Albemarle Street, London. Founded in 1799 to promote the use of science 'for the common purposes of life', the Ri has been a cornerstone of scientific discovery and public engagement, housing groundbreaking research and educational activities for over two centuries. The BCMP outlines the historical, architectural and cultural significance of the site, identifies key issues and sets forth management recommendations to ensure its sustainable future.

The significance of the Royal Institution

As home to the Royal Institution (Ri) since its founding, 21 Albemarle Street has been the site of numerous scientific discoveries, including the isolation of chemical elements, the invention of the electric motor and advancements in X-ray crystallography. The iconic Theatre, Christmas Lectures and Faraday Museum have all further enhanced the Instituition's global reputation as a hub for science communication and education.

At the same time, the buildings themselves have evolved from 18th-century town houses into a modern scientific institution. The fabric has been added to over time, with alterations designed, or at least steered, by notable architects including John Carr, John Soane, Henry Holland, Lewis Vulliamy, Owen Jones, William Flockhart and Leonard Rome Guthrie. These changes included, during the 19th century, the development of the best-equipped research laboratory in the country, and one of the best in Europe. While such improvements and extensions have eroded the wholeness of the original buildings, each has contributed a layer to the place's history, lending significance in its own right.

The heritage value of the collections housed within the buildings, including original apparatus and physical artefacts of scientific discoveries, cannot be overstated. The archive contains primary accounts of many of the great discoveries of the 19th and 20th centuries. These collections are all the more significant for being held in the same buildings in which many were produced.

Key issues and recommendations

The Building Conservation Management Plan (BCMP) identifies a number of defining issues, including the physical condition of the building, previous alterations, access challenges, statutory approvals, collections management, climate change adaptation, fire protection and public expectations. Notable concerns include the ageing stucco facade, deteriorating finishes in the Theatre, outdated services, and the need for improved vertical circulation and accessibility. The impact of previous alterations, such as the 2004–08 refurbishment by Terry Farrell and Partners, is also assessed, highlighting both successes and areas requiring reconsideration.

The BCMP provides actionable recommendations.
Key priorities include:

- Undertaking regular condition surveys and maintenance programmes to address structural and decorative issues
- Conserving significant historic fabric, such as the Grand Staircase and Theatre
- Enhancing accessibility while sustaining heritage values
- Cataloguing and conserving the Ri's extensive collections and archive
- Developing a climate change adaptation plan to ensure resilience and sustainability
- Upgrading fire protection measures to safeguard the building and its contents.

Future vision

The future prosperity of the building will depend on a carefully calibrated approach to conservation, balancing the Ri's heritage and historic context with its ever-evolving role as a scientific institution.

The BCMP advocates thoughtful adaptation to meet contemporary needs. It also highlights the value of ongoing research, fundraising and collaboration with stakeholders to ensure that the Ri remains a vibrant and accessible space for science communication and learning. By implementing the recommendations outlined in this plan, the Ri will preserve its rich legacy while continuing to inspire future generations through scientific discovery and education.

2. Introduction

2.1 Purpose of the BCMP

The Building Conservation Management Plan (BCMP) was commissioned by the Ri as part of its continued commitment to preserve this nationally important designated heritage asset. It was also a key recommendation of Historic England as part of a recent decarbonisation project. The plan was prepared by architectural practice BDP and historic buildings consultant Anthony Peers in 2025, and has been implemented as part of a wider review of building maintenance planning for both 20 and 21 Albemarle Street.

The BCMP builds upon the 2003 Conservation Plan by Frank James and Anthony Peers, and draws on fresh research into the buildings, as well as reflecting changes in museum and conservation practice and legislation. It addresses the significance of the subsequent 2004-08 refurbishment led by Terry Farrell and Partners, and includes a renewed appreciation of the works of Leonard Rome Guthrie, which were largely undertaken in the 1930s. Both phases of development combined new-build elements with refurbishment, and both have had an extensive impact.

The plan considers the significance of 20 Albemarle Street as a separate listed building and addresses issues specific to that site. It also recognises that the current Theatre, which dates from the 1930s, nonetheless shares significance with the earlier Theatre. These are distinct differences from the 2003 Conservation Plan and reflect both how the buildings have changed and how attitudes to 20th-century fabric have evolved.

2.2 Objectives of the BCMP

The objectives of the document are:

- To document the history of the asset and provide references to further information (**Section 3**)
- To identify and assess what makes the site significant in terms of its heritage values; why it is important to the people that occupy and use it; and the potential effect on the site's future development (**Section 4**)
- To identify vulnerabilities and opportunities presented by the site, both now and in the future (**Section 5**)
- To provide a structure for decision-making and change management that incorporates, respects and enhances the site's significance. The plan makes a series of recommendations to ensure that the Ri and its buildings have a long-term future that is both sustainable and sympathetic to the Institution's needs (**Section 6**).

Accordingly, the structure of this document is as follows:

- Volume one: Past and present. Sections 1–3 explore the history and development of the current buildings, as well as the pioneering endeavours and personalities whose stories are inextricably linked to Albemarle Street
- Volume two: Looking forward. Sections 4-6 address the current condition of the building and the conservation issues it faces.

2.3 Using the BCMP

The BCMP follows the guidelines set out by the Heritage Fund's *Conservation Planning Guidance* (2019), as well as Historic England's *Maintenance, Repairs and Conservation Management Plans* (2021) and *The Conservation Plan, Seventh Edition* by James Semple Kerr.

It provides a primary source of reference that should be consulted in advance of any repair, alteration or maintenance by all parties involved in the works who have responsibility for the Ri's buildings. It should also be referred to when contemplating capital works or strategic use of the estate and its constituent parts, and should guide the long-term management of the Institution in a way that safeguards the site's significance.

It is expected that the BCMP should be reviewed on a 10-yearly basis. As part of this cycle, any new or changed risks should be addressed and policies revised accordingly. (Policies will henceforth be referred to as 'management recommendations', as the term 'policies' at the Ri relates to the operation of the Institution and the Faraday Museum.)

Practical uses of the BCMP include the following:

- Options appraisals. Use the statement of significance (**Section 4.3**) to assess the likely effect and associated risks of proposals
- Management of change. Project managers should use the statement of significance to inform architects and other designers about the historic value of the buildings, so that changes can be designed sensitively

- Applying for listed building consent or planning permission. The recommendations and advice within the plan should be referred to as support for proposals. Where relevant, the detailed repair methods can be quoted

- Preparing briefs for contractors. Use the advice on repair, maintenance and upgrade, and ensure contractors are aware of the recommendations when planning and carrying out work.

This document's appreciation of the site's heritage value should not be regarded as a barrier to future change. Rather, it should be seen as a vehicle through which the Ri, and all who care about its rich and complex history, might be better served, enabling change to take place in an informed manner that sustains the building's core heritage values while also allowing it to remain viable, relevant and in active use. The architectural significance of 20 and 21 Albemarle Street is given a vitality by the fact that, within these buildings, the Ri continues to be at the forefront of communicating scientific progress.

2.4 Statutory designation

Listing marks and celebrates a building's special architectural and historic interest, and also brings it under the consideration of the planning system, so that it can be protected for future generations.
Historic England

20 and 21 Albemarle Street are each Grade I listed, which means they are buildings are of exceptional interest and high heritage significance or cultural value. Grade I affords the highest levels of statutory protection from harmful alterations and is reserved for just 2.5% of listed buildings. As the listing system puts store by age, it is generally the oldest elements of buildings that require the most considerate treatment. The official list entry is 1066520 for No 20 and 1066521 for No 21. A record of the listing entries is included in the Appendix (**Section 7**).

Legislation and planning policy, such as the National Planning Policy Framework, requires that the 'special architectural or historic interest' or 'significance' of a historic building or site be taken into account by all parties engaged in its conservation. This means that decisions about work to areas or elements in the building should be based on knowledge of the provenance and significance of the fabric affected. Fabric built or installed to the design of an architect of renown will be considered of elevated significance. So too will any space that can be linked to a person of note and their endeavours.

Twenty-three years on from the 2003 Conservation Plan, standpoints have evolved. The Guthrie works are now more highly regarded, and Farrell's refurbishment can also be appreciated for its heritage value – some Farrell-designed buildings are now protected through the listing system, having passed the '30-year rule' that broadly defines historic status.

In the first years of this century, when the Farrell refurbishment scheme was being planned, parts of Nos 20 and 21 were considered of minimal significance. However, the 2025 re-evaluation has identified that significance is more widely distributed across the buildings than was previously understood. This does not imply that all areas are of equal sensitivity, nor that change is precluded. Rather, it highlights the importance of a carefully considered and proportionate approach to change, informed by an understanding of the varied contribution made by different elements, spaces and layers of fabric to the significance of the Ri as a whole.

2.5 Stakeholder consultation and adoption

The BCMP has been reviewed in consultation with the Ri's in-house teams and externally with the Greater London Authority, Historic England and members of the Steering Group and the Decarbonisation Project Board.

The management recommendations set out in **Section 6** are accepted by the Ri. The facilities management and heritage teams should ensure that all those responsible for the management and repair of the buildings are aware of the BCMP, understand its principles and implement its recommendations.

3. Understanding

3.1 History of the Ri

Since its founding, the Ri has performed a double role as both a cradle of scientific discovery and a centre for conveying this knowledge to a broader audience. The two sides of the Ri's activities create a unique legacy: buildings that have played host to the great figures of modern science; and within those buildings, a vast trove of apparatus, documents and images.

Among those who have researched, lectured and lived at the Ri are such names as Humphry Davy, Michael Faraday, James Dewar, William Henry and William Lawrence Bragg, and George Porter. The discoveries made by these and other Ri scientists have transformed the way we live today. They have established the foundations for the practical use of electricity; laid the cornerstones of our understanding of the physical world and the molecular basis of life; and helped to develop laser therapies for cancer.

At the same time, the Ri has sought to bring science and society closer together. During the past two centuries, most major scientists have lectured in the Ri's famous Theatre, as have many important figures from other areas of culture, from John Soane to Yehudi Menuhin. As new media have developed, so too has this programme of science communication, not least through the televising of the Christmas Lectures, first broadcast in 1966. In 2024–25, more than 35,000 people attended a talk or show in the theatre or online.

All of these endeavours have left an internationally significant collection of historic material, from prototype miners' safety lamps to early examples of X-ray spectrometers. The archive also contains notebooks and correspondence charting the development of such apparatus, as well as lecture notes and, more recently, audio and video recordings.

This section is divided into two parts: a summary of the events and individuals that have shaped the Ri's history; and a specific focus on the architectural history of the buildings. It tells the story of how, over the course of two centuries, a medium-sized Mayfair town house became – and remains – a major centre for scientific excellence and communication.

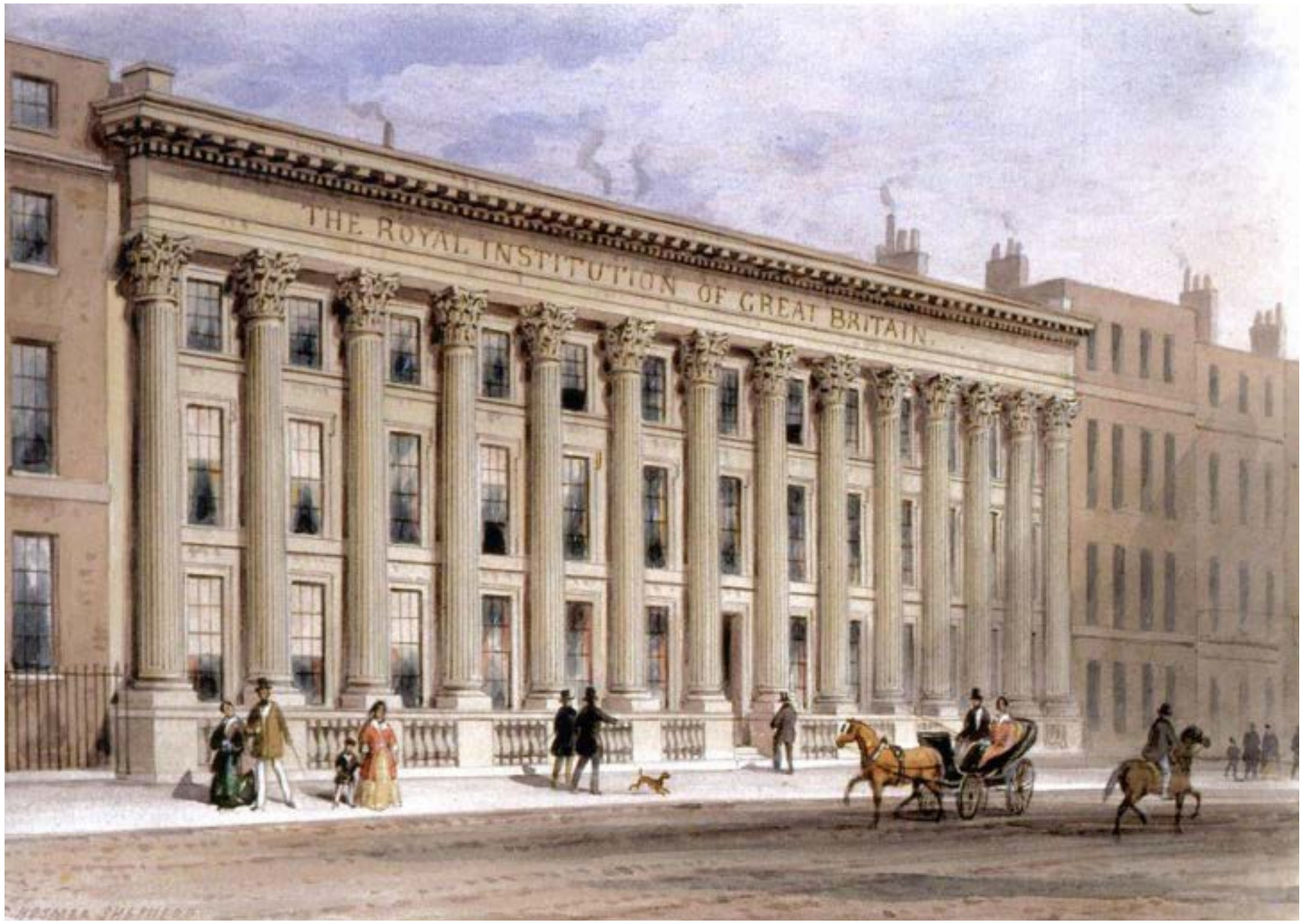

Fig 3.1 Ri facade. Thomas Hosmer Shepherd, c.1838 watercolour, RIIC 0277

3.2 Events and personalities

3.2.1 Founding and early development

The Ri was founded at a meeting on 7 March 1799 at the Soho Square house of Joseph Banks (1743–1820, Fig 3.2), the President of the Royal Society. A list was read out of 58 of gentlemen who had agreed to contribute 50 guineas to be a Proprietor of a new 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'.[1]

Fifty guineas was a substantial sum of money (roughly £7,500 in terms of today's purchasing power), which meant only the wealthy could afford to join. The original Proprietors reads like a who's who of late 18th-century British society. They included the anti-slavery campaigner William Wilberforce, the substantial landowners William Cavendish, 5th Duke of Devonshire and George John, 2nd Earl Spencer, and the naval officer George Elphinstone, Lord Keith. Proprietors would each receive an ivory token allowing them admission to any event at the Ri. Annual subscribers would only receive a small metal token (Fig 3.3).

The thinking behind this new learned society was shaped by two factors: war and industrialisation.[2] The war with Revolutionary France, which would continue for a further 16 years, meant that Britain had very restricted access to Continental markets and was forced to rely on its own resources. It was envisaged that the Institution would provide a lay audience with access to scientific and technical knowledge, which could then be practically applied in areas such as agricultural improvement, industrialisation and the consolidation of the Empire. The early membership shows a strong presence of large land owners, military men and those working for the East India Company.

Such aims were in contrast to those of the Royal Society, the meetings of which were restricted to Fellows and their few guests to hear learned papers. Whereas the Royal Society did not admit women to its Fellowship until 1945, the Ri was from its inception

Fig 3.2 Joseph Banks. CE Wagstaff after Thomas Phillips, RIIC 0609

Fig 3.3 Early tokens of admission to the Ri. From Ri Archival Collection

Fig 3.4 The Comforts of a Rumford Stove. James Gillray, 1800, RIIC 0001

[1] Managers' Minutes of the Royal Insitution (RI MM), 9 March 1799, **1**: 1.

[2] For an account of the founding of the Royal Institution see M. Berman, *Social Change and Scientific Organization: The Royal Institution 1799 – 1844*, London, 1978. The most recent general history of the Royal Institution is Frank A.J.L. James (ed.), *'The Common Purposes of Life': Science and society at the Royal Institution of Great Britain*, Aldershot, 2002.

intended for women as well as men.[3] Furthermore, the Royal Society did not have what would become a central feature in the Ri – a laboratory. Banks, who generally opposed the forming of new scientific bodies, actively supported the establishment of the Ri to do things that were not deemed appropriate for the Royal Society.

At the meeting at Banks' house, the Proprietors discussed the *Proposals*[4] for the Institution, which had been drawn together in the previous weeks by Benjamin Thompson, Count Rumford (1753–1814, Fig 3.4). A committee of Managers was elected to run the Institution, and it was decided that the *Proposals* would be published to garner more support. A petition would also be submitted for a Royal charter. The name 'Institution' was chosen in imitation of the famous *Istituto delle Scienze e delle Arti,* founded in Bologna in the early 18th century.[5]

The development of the Institution was rapid. The Managers first met, again in Banks' house, on 9 March 1799, two days after their election. George Finch, 9th Earl of Winchilsea (1752–1826), was elected President in June, and through his influence with the King, George III, the Institution acquired its royal patronage in the same month.[6] The charter was not granted until 13 January 1800, by which time the unifying and patriotic 'Great Britain' had been added to the name.

In the months immediately following the Ri's foundation, the search for a suitable home was a major priority. Negotiations for the purchase of 21 Albemarle Street commenced in April 1799, but were not completed until the end of July. Nevertheless, the first meeting of the Managers took place there in June, and builders quickly turned the property into a fully functioning scientific institution (see **Section 3.3**). On 11 March the following year, Thomas Garnett (1766–1802, Fig 3.5), the Ri's first Professor of Chemistry, delivered the inaugural lecture in the Theatre.[7]

Much of the early effort of the Ri concentrated on utilitarian work, for instance using chemistry to improve agriculture. Indeed, the Ri

Fig 3.5 Thomas Garnett. Unknown artist, RIIC 0077

Fig 3.6 Humphry Davy. H.W. Pickersgill after Thomas Lawrence, 1831, RIIC 0061

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3 This is stated explicitly in *Prospectus, Charter, Ordinances and Bye–Laws, of the Royal Institution of Great Britain*, (London, 1800), p.45.

4 This was the founding document of the Ri, written by Count Rumford in 1799. The full title is *Proposals for forming by subscription in the metropolis of the British Empire, a Public Institution for diffusing the knowledge and facilitating the general introduction of useful mechanical inventions and improvements and for the teaching by courses of philosophical lectures and experiments.*

5 *Prospectus … op.cit* (3), p.1. For the *Istituto* see Giorgio Dragoni, 'Marsigli, Benedict XIV and the Bolognese Institute of Sciences' in J.V. Field and Frank A.J.L. James (eds.), *Renaissance and Revolution: Humanists, Scholars, Craftsmen and Natural Philosophers in Early Modern Europe*, Cambridge, 1993, pp.229–37.

6 RI MM, 29 June 1799, **1**: 45.

7 *Gent.Mag.*, 1800, **70**(1): 382.

undertook so much of this sort of research that it was referred to in an 1803 will, in which it was left 40 guineas, as the 'New Society of Husbandry … lately established in Albemarle Street'.[8]

Although such practical work remained a feature of the Ri during both the 19th and 20th centuries, the Managers quickly realised that its programme needed a broader public appeal. Following the strong 18-century tradition, the Ri began to stage spectacular and entertaining, not to say dangerous, demonstrations of scientific experiments. For this work, they procured the services of the 22-year-old Humphry Davy (1778–1829, Fig 3.6).[9]

3.2.2 Humphry Davy

Born in Penzance, Davy was the son of a woodcutter. After spending time as an apothecary's apprentice, by the end of the 1790s he was working at the Pneumatic Institute in Bristol, run by Thomas Beddoes. It was here that he made his name with the discovery of the physiological action of nitrous oxide, or laughing gas. Davy tried the gas out on some of his friends in Bristol, including the poets Samuel Taylor Coleridge and William Wordsworth. Evidence of the way that Davy's discovery captured the public imagination can be found in the famous caricature (Fig 3.7) by James Gillray. In it, Garnett is administering the gas to John Hippisley, a Ri Manager, with somewhat unfortunate results, while a slightly demonic Davy watches with a pair of bellows poised for further action.

In March 1801, Davy left Bristol to take up the post of Assistant Professor of Chemistry at the Ri. Following Garnett's resignation in June 1801, Thomas Young (1773-1829, Fig 3.8) was appointed in his place. Davy was promoted to Professor of Chemistry in 1802. It soon became clear that the Ri had acquired an immensely popular lecturer who was able to attract large audiences. Moreover, its premier position for undertaking utilitarian work was strengthened by Davy through his lectures on agricultural chemistry and tanning, and his invention of the miners' safety lamp in 1815–16 (Fig 3.14).

However, such popularity and usefulness did not prevent the Ri from suffering the first of its periodic financial crises a decade after its founding. This was resolved by an 1810 Act of Parliament, which, among other things, abolished hereditary Proprietors and replaced them with Members, who paid an annual subscription.

Davy also established scientific research as a crucial feature of the Ri, something that was never envisaged by the founders. The

Fig 3.7 Scientific Researches: New discoveries in Pneumaticks! James Gillray, 1801 or 1802, RIIC 0488

Fig 3.8 Thomas Young. Mabel Messer after Thomas Lawrence, 1922, RIIC 0492

Fig 3.9 William Thomas Brande. RIIC 0060

Fig 3.10 Electro-chemical apparatus, including a battery used by Humphry Davy in 1807 in his isolation of sodium and potassium. From the Ri collection

[8] Quoted in Berman, *op.cit* (2), p.45.
[9] RI MM, 23 February 1801, **2**: 134.

aspiration to put on spectacular demonstration lectures meant that the Ri needed a good laboratory. The Managers allocated money and support so that the laboratory quickly became the best equipped in Britain and one of the best in Europe.

In this laboratory, Davy made a number of pioneering discoveries. During the first decade of the 19th century, he developed the first coherent theory of electro-chemical action. Following the invention of the electric battery in 1799 by Alessandro Volta, he used large voltaic piles turned on their side as trough ('Cruickshank') batteries (Fig 3.10) to isolate the chemical elements sodium, potassium, barium, calcium, magnesium, strontium and boron. He later showed that chlorine and iodine were also elements.

In 1812, Davy was knighted and married Jane Apreece, a wealthy widow, and he decided to retire from his Professorship at the age of 34. He stayed on as Honorary Professor until 1823, and continued to use the laboratories, including for his work on the miners' lamp.

Davy was succeeded by William Thomas Brande (1788–1866, Fig 3.9).[10] Although Brande is little known today, mainly because he did not make any major scientific discoveries, he played a critical role in the development of the Ri for more than 40 years. In 1816, he established chemical lectures for medical students. He edited the Institution's journal and continued with the practical application of scientific knowledge, particularly in the fields of water analysis and coinage.

3.2.3 Michael Faraday

Davy's other successor is better known. Michael Faraday (1791–1867, Fig 3.11)[11] was the son of a Sandemanian blacksmith who had moved from Westmoreland to London in the late 1780s.

The Sandemanians were a very small literalist Christian sect to which Faraday remained fully committed throughout his life.[12]

Fig 3.11 Michael Faraday. Matthew Noble, 1854, RIIC 0472

Fig 3.12 Faraday's electrostatic generator which he made while an apprentice bookbinder, c.1810. RIAC 0004

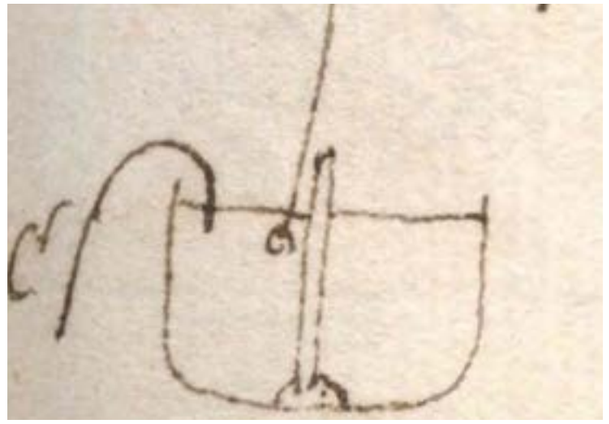

Fig 3.13 Faraday's notebook drawing of his electromagnetic rotations experiment of 4 September 1821. RI MS F/2/A – f.66

Fig 3.14 Some prototypes of Davy's miners' safety lamp

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[10] On Brande see Elizabeth Haigh, 'William Brande and the chemical education of medical students' in Roger French and Andrew Wear (eds.), *British Medicine in an Age of Reform*, (London, 1991), pp.186–202; C.H. Spiers, 'William Thomas Brande, leather expert', *Ann.Sci.*, 1969, **25**: 179-201.

[11] On Faraday generally see Geoffrey Cantor, David Gooding and Frank A.J.L. James, *Faraday* London, 1991; reprinted as *Michael Faraday*, Atlantic Highlands, 1996. Faraday's correspondence is being made accessible through a project based at the Royal Institution. Four volumes out of six have so far been published in Frank A.J.L. James, *The Correspondence of Michael Faraday,* 4 volumes, London, 1991–1999. Most of Faraday's non-epistolatory papers have recently been microfilmed. See Frank A.J.L. James, *Guide to the Microfilm edition of the Manuscripts of Michael Faraday (1791–1867) from the collections of The Royal Institution, The Institution of Electrical Engineers, The Guildhall Library [and] The Royal Society,* Wakefield, 2000/1.

[12] Cantor, Geoffrey, *Michael Faraday: Sandemanian and Scientist. A Study of Science and Religion in the Nineteenth Century*, London, 1991.

He made his confession of faith in 1821 (the same year he married into another Sandemanian family), was a Deacon in the church between 1832 and 1840, an Elder between 1840 and 1844, and again between 1860 and 1864. There was a close connection between Faraday's religion and his scientific career. This can be summed up as his search for the laws of nature that God had written into the universe at the time of the Creation and the use of that knowledge for the betterment of humankind.

In 1805, following a typical working-class education, the 14-year-old Faraday was apprenticed to bookbinder George Riebau in Blandford Street, where he learned the trade for the next seven years. During this apprenticeship, Faraday developed an overriding interest in science, particularly chemistry. He read many books on the subject including Jane Marcet's *Conversations in Chemistry*. He attended lectures in various places, most importantly the City Philosophical Society,[13] and made his own electro-static generator (Fig 3.12).

A customer at the bookshop gave Faraday tickets to attend Davy's final course of lectures at the Ri, which dealt with the definition of acidity, a problem then at the cutting edge of chemistry. Faraday took detailed notes and sent them to Davy, asking for a job at the Ri. After a complex set of circumstances, Faraday was appointed Chemical Assistant in the spring of 1813.

Six months later, as Davy's assistant, secretary and reluctant valet, Faraday was touring the Continent with Davy, Lady Davy and her maid. They went through France, Italy, Switzerland and parts of Germany.[14] In Paris they experimented on iodine; in Florence Davy used the burning glass of the Grand Duke of Tuscany to show that diamonds were made of carbon; they climbed Mount Vesuvius; and in Milan they met Volta, who gave Faraday one of his batteries – a voltaic pile now on display in the Faraday Museum.

Returning to England just before the Battle of Waterloo, Faraday resumed his position at the Ri, where he remained for the rest of his life. In 1821, he became Superintendent of the House, then in 1825 Director of the Laboratory, and in 1833 Fullerian Professor of Chemistry, a post that was especially created for him by John Fuller. Fuller also endowed a Professorship of Physiology, which has been held by such eminent people as Peter Mark Roget, Thomas Henry Huxley, Charles Sherrington, Max Perutz and Andrew Huxley.

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[13] Frank A.J.L James, 'Michael Faraday, The City Philosophical Society and the Society of Arts', *Roy. Soc.Arts J.*, 1992, **140**: 192–9.

[14] Brian Bowers and Lenore Symons, *'Curiosity Perfectly Satisfyed': Faraday's travels in Europe 1813–1815*, London, 1991.

Fig 3.15 Albert Hall celebrations to mark the centenary of Faraday's discovery of electromagnetic induction. J.Inst. Elec. Eng., 1931, 69, opposite p. 1330

Fig 3.16 Ring with which Faraday discovered electromagnetic induction on 29 August 1831. This is the first electric transformer. RIAC 00020

Fig 3.17 The first electric generator made by Faraday on 17 October 1831. RIAC 00022

Faraday's research

Faraday is rightly remembered for his many fundamental contributions to chemistry and physics, made mostly in the Basement Laboratory of the Ri. Following the discovery of electromagnetism in 1820 by the Danish savant Hans Christian Oersted, Faraday turned his attention to the subject. The following year he discovered electromagnetic rotations, the principle behind the electric motor (Fig 3.13). Ten years later, in August 1831, he discovered electromagnetic induction and made the first transformer and generator to produce electric current from the movement of a magnet in a coil of wire. (The originals of both these devices are on display in the Faraday Museum, Fig 3.16 and Fig 3.17).

The impact of these discoveries is still felt today. No matter what primary source of energy is used, all power stations generate electricity based on the fundamental principles that Faraday established in 1831. On the centenary of his discoveries in 1931, and coinciding with a period of increasing electrification, large-scale celebrations took place, including a major exhibition featuring a model town run by electricity at the Royal Albert Hall (Fig 3.15).[15]

Later in the 1830s, Faraday studied electro-chemistry, establishing his laws of electrolysis and developing with a number of classical scholars the nomenclature (electrode, anode, cathode, ion etc) with which we are so familiar today.[16] In 1836, Faraday built a 12ft x 12ft x 12ft cage covered in metal gauze, for which only the Theatre could provide sufficient space. His experiments in the cage enabled him to show that electricity was a force rather than an imponderable fluid, as had been argued up to that time.

In 1845, Faraday discovered that light was affected by magnetism (Fig 3.18) and that all matter possessed magnetic properties, not just iron (Fig 3.20). These breakthroughs allowed him to develop his field theory of electromagnetism,[17] which he illustrated by making the first iron filing diagrams (Fig 3.19). Later mathematised by his younger contemporaries William Thomson (Lord Kelvin,

Fig 3.18 Faraday's experimental apparatus to show the magneto-optical effect that he discovered in 1845. RIAC 00039

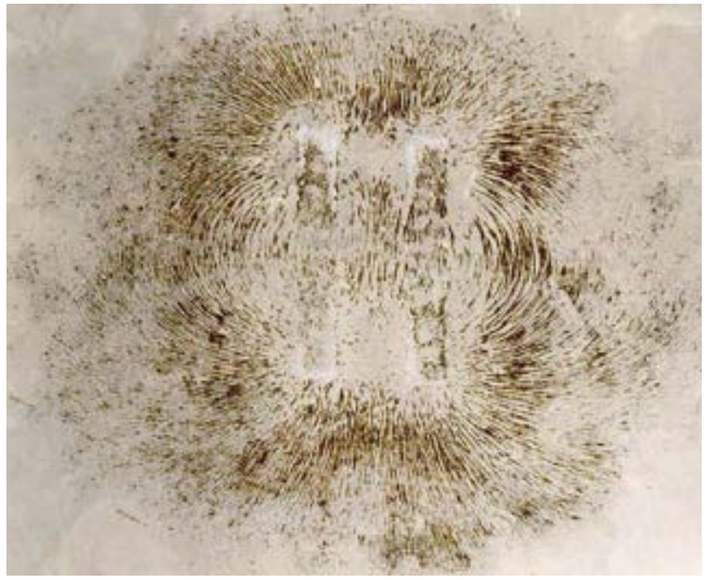

Fig 3.19 Iron filing diagrams made by Faraday c.1850 to illustrate that space had structure near a magnet. Ri Archival Collection

Fig 3.20 Faraday's giant electromagnet which he used in the diagrammatic experiments, 1840s-1850s. RIAC 00084

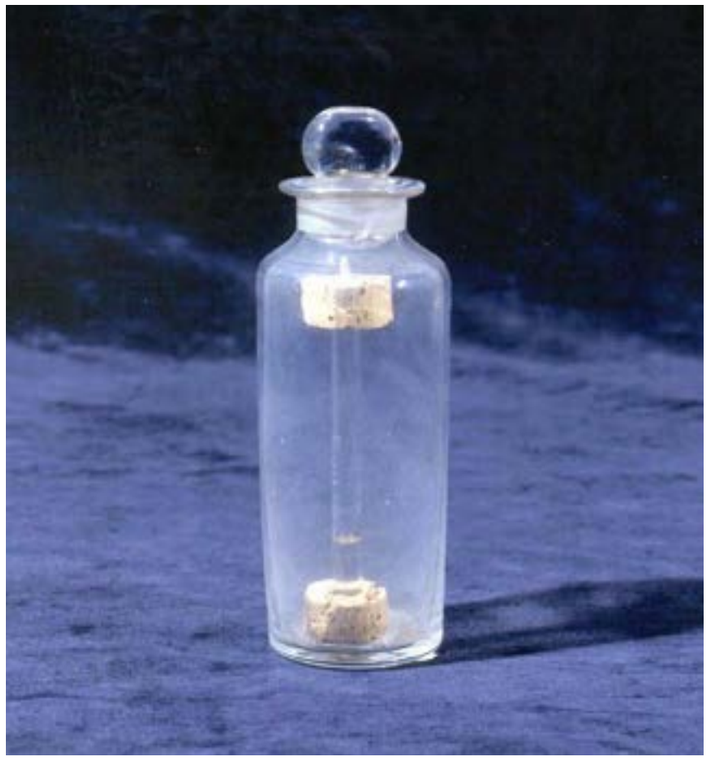

Fig 3.21 Sample of benzene made by Faraday in 1825. RIAC 00050

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[15] *Faraday Celebrations 1931. Final Programme*, London, 1931.

[16] Sydney, Ross, 'Faraday consults the scholars: The origins of the terms of electrochemistry', *Notes Rec.Roy.Soc.Lond.*, 1961, **16**: 187–220.

[17] David Gooding, 'Final steps to the field theory: Faraday's study of magnetic phenomena, 1845–1850', *Hist.Stud.Phys.Sci.*, 1981, **11**: 231-75; Nancy J. Nersessian, 'Faraday's Field Concept' in David Gooding and Frank A.J.L. James (eds), *Faraday Rediscovered: Essays on the Life and Work of Michael Faraday, 1791–1867*, London, 1985, pp.175-87.

1824–1907) and James Clerk Maxwell (1831–1879),[18] this theory became, and remains, one of the cornerstones of modern physics.

Faraday as a scientific adviser

The technological application of these and other discoveries, such as his liquefaction of gases (1823) and isolation of benzene (1825, Fig 3.21), have radically altered the way we live. But Faraday was also directly involved with technology through the utilitarian role of the Ri. In the early 1820s, he worked on a project to improve steel and, in the latter part of the 1820s, on a time-consuming and ultimately unsuccessful project to improve optical glass.[19]

Outside the building, in 1844, he conducted, with the geologist Charles Lyell, the Home Office inquiry into the explosion at Haswell Colliery, County Durham, in which 95 men and boys had died.[20] The report that he and Lyell produced so embarrassed the government that they resorted to political manoeuvring to suppress it.

Faraday was appointed scientific adviser to the Admiralty in 1829 and gave it counsel until at least the Anglo-French war against Russia in the mid-1850s, during which he suggested that a plan of attack against the Baltic naval fortress of Cronstadt would probably be ineffective.[21] Between 1830 and 1852, he taught chemistry to cadets at the Royal Military Academy, Woolwich.[22]

Faraday's most sustained piece of utilitarian work was undertaken for Trinity House, the English and Welsh lighthouse authority, where he was scientific adviser from 1836 to 1865.[23] Partly carried out at the Ri, partly at Trinity House itself, and partly through visits to lighthouses around the country and in France, the role led to the experimental introduction of electric light at the South Foreland lighthouse in the 1850s and 1860s (Fig 3.23), as well as the development of a new oil lamp. This was used not only in lighthouses but in buildings such as the new Houses of Parliament and Buckingham Palace. He also commented on environmental

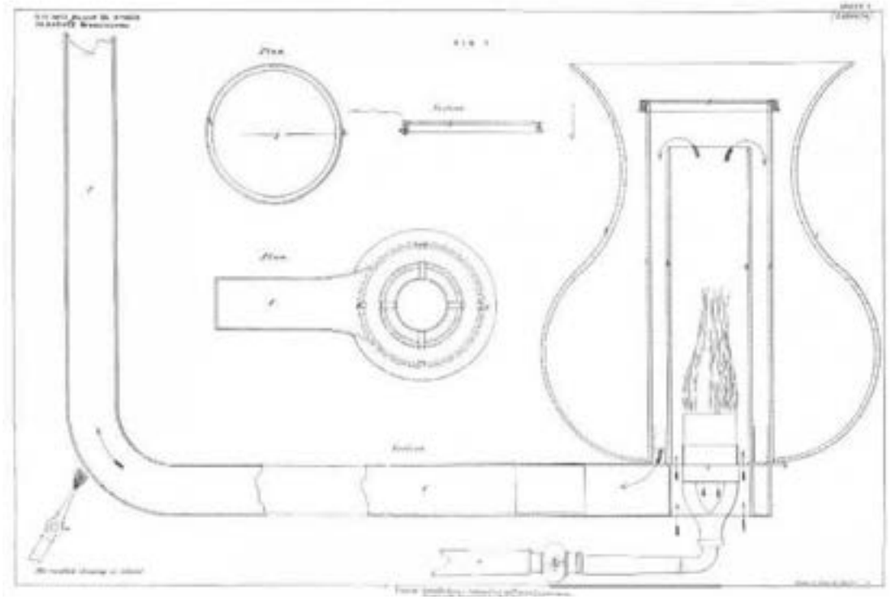

Fig 3.22 Drawing of Faraday's chimney from the 1843 patent (no 9679) taken out by his brother Robert

Fig 3.23 South Foreland Lighthouse, where Faraday oversaw the installation of electric light in the 1850s and 1860s

[18] Frank A.J.L. James, 'Faraday, Maxwell and Field Theory' in Frank A.J.L. James (ed.), *Semaphores to Short Waves*, London, 1998, pp.71-84

[19] Frank A.J.L. James, 'Michael Faraday's Work on Optical Glass', *Phys.Ed.*, 1991, **26**: 296–300.

[20] Frank A.J.L. James and Margaret Ray, 'Science in the Pits: Michael Faraday, Charles Lyell and the Home Office Enquiry into the Explosion at Haswell Colliery, County Durham, in 1844', *Hist. and Tech.*, 1999, **15**: 213–31.

[21] Faraday to Martin, 7 August 1854, Faraday, *Correspondence*, **4**: 2871.

[22] Frank A.J.L. James, 'The Military Context of Chemistry: The Case of Michael Faraday', *Bull.Hist. Chem.*, 1991, **11**: 36–40.

[23] Frank A.J.L. James, ''the civil–engineer's talent': Michael Faraday, science, engineering and the English lighthouse service, 1836–1865', *Trans.Newcomen Soc.*, 1999: **70**: 153–60 and 'Michael Faraday and Lighthouses' in Ian Inkster, Colin Griffin, Jeff Hill and Judith Rowbotham, (eds.), *The Golden Age: Essays in British Social and Economic History, 1850–1870*, Aldershot, 2000, pp.92–104.

issues such as the polluted state of the Thames,[24] which prompted *Punch* to publish a splendid cartoon showing Faraday handing his card to Father Thames (Fig 3.26).

Faraday and lectures at the Ri

Faraday was also instrumental in founding two series of lectures that continue to this day. Founded in 1825, the Friday Evening Discourses were initially small gatherings in the Library but they quickly grew in popularity and moved to the Theatre, with the first Discourse in the Theatre taking place in February 1826. By the 1840s, they were very formal affairs. The lecturer commenced as the clock struck the hour and was supposed to finish as the clock struck the next hour.

Discourses are addressed to members and their guests. More than 3,700 Discourses have been delivered since their foundation, and have covered a broad range of both scientific and non-scientific subjects. While these are now less formal, they still have to start and end strictly on the bell.

Many significant scientific discoveries have been first announced at a Discourse. As examples, two might be picked out for special mention: on 25 January 1839 Faraday publicly disclosed for the first time the invention of photography by William Henry Fox Talbot; and on 30 April 1897, JJ Thomson announced the existence of the fundamental particle later called the electron.

Although these lectures were delivered in front of an audience in the Ri's Theatre, the Institution has always endeavoured to provide accessible versions of them. Faraday spent considerable effort in ensuring that Discourses were reported in the weekly periodical press, and, between 1851 and 2004, reports were published in the *Proceedings of the Royal Institution*.[25] Some, for instance CP Snow's, have been televised.

Faraday also initiated the Christmas Lectures for young people, giving 19 series himself. His 1848 lecture series, which focused on *The Chemical History of a Candle*, became a highly successful book. This has hardly been out of print since, and has been translated into several languages including French, Polish and Japanese. In December 1855, he delivered a Christmas Lecture in the presence of Prince Albert (Prince Consort), the Prince of Wales and Prince Alfred, which was depicted in a picture (Fig 3.24) by Faraday's fellow Sandemanian, Alexander Blaikley. Faraday's reputation for

[24] Faraday to the Editor of *The Times*, 7 July 1855, Faraday, *Correspondence*, **4**: 3003.

[25] Frank A.J.L James, 'Reporting Royal Institution Lectures, 1826 to 1867', in Sally Shuttleworth and Geoffrey Cantor, (eds.), *Science Serialized: Representations of the Sciences in Nineteenth–Century Periodicals*, Cambridge MA, forthcoming.

Fig 3.24 Faraday delivering a Christmas Lecture before Prince Albert, the Prince of Wales and others on 27 December 1855. Alexander Blaikley, c.1856, RIIC 0006

Fig 3.25 Eric Laithwaite delivering a Christmas Lecture in 1966, the first series to be televised. RIIC 2779

Discourses

Discourses have been delivered by such diverse figures as:

Scientists

Charles Wheatstone (1802–1875)
Alfred Russel Wallace (1823–1913)
William Thomson (1824–1907)
Thomas Huxley (1825–1895)
James Clerk Maxwell (1831–1879)
Jagadish Chandra Bose (1858-1937)
Peiter Zeeman (1865–1943)
Ernest Rutherford (1871–1937)
Guglielmo Marconi (1874–1937)
Alexander Fleming (1881–1955)
Kathleen Lonsdale (1903–1971)
Dorothy Hodgkin (1910–1994)
Max Perutz (1914–2002)
Fred Hoyle (1915–2001)
Stephanie Shirley (1933–2025)
Jane Goodall (1934–2025)
Patrick Moore (1923–2012)
Geoffrey Hinton (1947–)
Sally Davies (1949–)
Paul Nurse (1949–)
David Speigelhalter (1952–)
Chris Bishop (1959–)
Jim Al-Khalili (1962–)
Michelle Dougherty (1962–)
Saiful Islam (1963–)
Turi King (1969–)

Art and architectural historians

John Ruskin (1819–1900)
Joan Evans (1893–1977, the first woman to deliver a Discourse in 1923)
Nikolaus Pevsner (1902–1983)
Kenneth Clark (1903–1983)
Neil MacGregor (1946 –)

Churchmen

Nicholas Wiseman, Archbishop of Westminster (1802–1865)
Arthur Stanley, Dean of Westminster (1815–1881)

Writers

George Du Maurier (1834–1896)
HG Wells (1866–1946)
Walter De La Mare (1873–1956)
John Buchan (1875–1940)
CP Snow (1905–1980)

Historians and archaeologists

GM Trevelyan (1876–1962)
Mortimer Wheeler (1890–1976)
Arthur Bryant (1899–1985)
Kathleen Kenyon (1906–1978)
Grayson Perry (1960–)

scientific discovery and communication is such that he featured on the £20 note issued by the Bank of England between 1991 and 1999.

The Christmas Lectures have been televised as full series since 1966 and now reach an audience of millions each year. As with the Discourses, the Christmas Lectures have been delivered by distinguished scientists and engineers including Robert Watson-Watt, Frank Whittle, Eric Laithwaite (Fig 3.25), Carl Sagan, Bernard Lovell, David Attenborough, Richard Dawkins, Richard Gregory, Hannah Fry, Alice Roberts and, in 2025, Maggie Aderin-Pocock.

Faraday's research, lecturing and public scientific work made him one of the most famous men of the day. He was awarded an annual Civil List pension of £300 in 1836, albeit after the Whig Prime Minister, Lord Melbourne, was forced to apologise to Faraday for calling scientific pensions 'humbug'.[26] Doubtless at the instigation of Prince Albert, who was a frequent visitor to the Ri, Queen Victoria (1819–1901) provided Faraday with a grace and favour house at Hampton Court in 1858. From then on, Faraday spent an increasing amount of time there.

In 1864, he was offered the Presidency of the Ri in succession to Algernon Percy, 4th Duke of Northumberland (1792–1865). Faraday refused on the grounds that he was the servant of the Ri rather than its master.[27] From 1865, his health declined sharply and he died at Hampton Court on 25 August 1867. He was buried five days later in the Sandemanian plot at Highgate Cemetery.

After Faraday

Faraday was succeeded at both the Ri and Trinity House[28] by John Tyndall (1820–1893, Fig 3.27). Tyndall was born in Ireland and was originally a railway surveyor.[29] He then taught mathematics at Queenwood College, a boys' school in Hampshire, before studying under Robert Bunsen in Marburg, receiving his PhD in 1850.

Tyndall took a strong interest in magnetism and attracted Faraday's attention. In 1853, he delivered a highly successful Friday Evening Discourse, which led to his appointment, at Faraday's suggestion, as Professor of Natural Philosophy to succeed the recently retired

Fig 3.26 Punch cartoon of 21 July 1855, p.27 showing Faraday giving his card to Father Thames after he had written to the Times complaining about the state of the river

[26] Melbourne to Faraday, 24 November 1835, Faraday, *Correspondence*, **2**: 837.
[27] Frank A.J.L. James, 'Running the Royal Institution: Faraday as an Administrator' in James, *op.cit.* (2), pp.119-46.
[28] R.M. MacLeod, 'Science and Government in Victorian England; Lighthouse Illumination and the Board of Trade, 1866–1886', *ISIS*, 1969, **60**: 4-38.
[29] There is no recent biography of Tyndall but see A.S. Eve and C.H. Creasey, *Life and Work of John Tyndall*, London, 1945 and J.D. Burchfield, 'John Tyndall at the Royal Institution', in James, *op.cit.* (2), pp.147-68.

Brande. Following Faraday's death, Tyndall became Superintendent of the House, while the position of Fullerian Professor of Chemistry was awarded to William Odling for five years, and then John Hall Gladstone for three.

Tyndall's scientific work included showing why the sky is blue (Fig 3.28), establishing a theory of glaciers, and of how gases radiate heat and warm the atmosphere, and attacking theories of spontaneous generation. But his most notable contribution was to the popularisation of science. He coined the phrase 'the scientific use of the imagination', used by Sherlock Holmes in *The Hound of the Baskervilles* (1902). Tyndall delivered a large number of lectures (including 12 series of Christmas Lectures) and wrote many books on popular scientific subjects. In his 1874 Presidential address to the Belfast meeting of the British Association for the Advancement of Science, he made the most famous – or notorious – statement of his view that the world should be studied from a naturalistic viewpoint rather than a theistic one.[30] The public impact of this address was still being felt in 1903 when, in George Bernard Shaw's play *Man and Superman*, Mrs Whitefield is given the line, 'Nothing has been right since that speech that Professor Tyndall made at Belfast'.

The Ri formally adopted research as one of its activities in 1862, following a report by its Secretary, Henry Bence Jones (1814–1873).[31] Indeed, research came to have an ever-increasing role as science in Britain grew in prominence in the late 19th century.

Following Tyndall's retirement in 1887, John William Strutt, 3rd Lord Rayleigh (1842–1919, Fig 3.29) was appointed Professor of Natural Philosophy, while James Dewar (1842–1923, Fig 3.30), who had been Fullerian Professor of Chemistry since 1877, became Superintendent of the House.[32] Rayleigh, who had moved from being Cavendish Professor of Experimental Physics at Cambridge University, was also a Secretary of the Royal Society and had a private laboratory at his house, Terling Place near Chelmsford. In 1896, he too became Scientific Adviser to Trinity House, following in the footsteps of Faraday and Tyndall.

The Davy-Faraday Research Laboratory

Fig 3.27 John Tyndall – Men of the Day, No. 43, "The Scientific Use of the Imagination", as depicted by 'Spy', Vanity Fair, 6 April 1872

Fig 3.28 Tube which Tyndall used in his experiments on the scattering of light by particles, which led to his explanation of why the sky is blue. RIAC 00330c

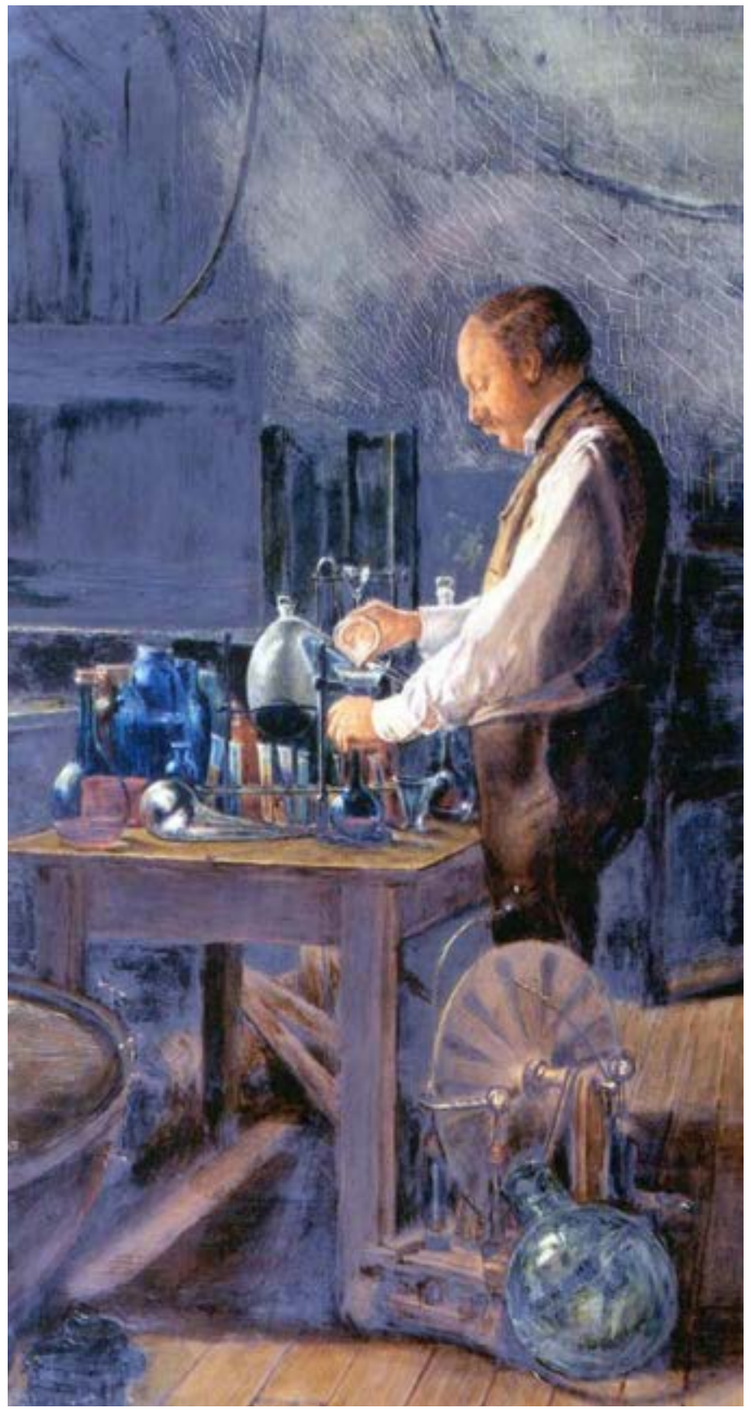

Fig 3.29 Lord Raleigh in his laboratory. Mabel Messer after Philip Burne-Jones, RIIC 0063

[30] Ruth Barton, 'John Tyndall, pantheist: A rereading of the Belfast address', *Osiris*, 1987, **3**: 111-34.
[31] Henry Bence Jones, *Report on the Past, Present, and Future of the Royal Institution, chiefly in regard to its encouragement of scientific research*, London, 1862.
[32] See John N. Howard, 'The scientific research of John William Strutt, third Baron Rayleigh', *Proc.Roy.Inst.*, 1988, **60**: 73-86; W.H. Brock, 'Exploring the Hyperarctic: James Dewar at the Royal Institution' in James, *op.cit.* (2), pp.169-90; and J.S. Rowlinson, *Sir James Dewar 1842-1923: A Ruthless Chemist*, 2012

By the end of the 19th century, it was becoming increasingly clear that the practice of science would need to change considerably. In particular, research needed to move from being undertaken by a single individual in a laboratory, perhaps with an assistant, to the current situation, where the head of a laboratory is generally supported by a large staff of post docs and PhD students. Consequently, facilities needed to become substantially larger.

The development of the Ri reflected these broad changes quite precisely. For much of the 19th century, it had possessed the best equipped laboratory in the country. With the founding of laboratories in Oxford and Cambridge in the 1870s and the establishment in the 1890s and 1900s of laboratories such as the National Physical Laboratory in London, the Physikalisch-Technische-Reichsanstalt in Berlin and the National Bureau of Standards in Washington, the Ri quickly found itself one among a number of much larger scientific institutions. It was clear that, to maintain its reputation as a major research laboratory, it would have to change its structure.

The Ri was given a massive boost in the 1890s with the acquisition of 20 Albemarle Street, which it converted into a large modern laboratory. The Davy-Faraday Research Laboratory was endowed by the industrial chemist Ludwig Mond (1839–1909, Fig 3.31) and opened by the Prince of Wales in 1896 (Fig 3.32). Dewar and Rayleigh were its joint first Directors.

Although Dewar divided his time between the Ri and Cambridge, where he was Jacksonian Professor of Experimental Natural Philosophy, his important work on cryogenics was located at the Ri. This had been a long-term interest, in the course of which he had invented the Dewar flask – now popularly known as the Thermos flask – to minimise heat loss. A year and a half after the opening of the Davy-Faraday Research Laboratory, Dewar achieved success when, after many attempts, on 10 May 1898, he first liquefied hydrogen (Fig 3.33).

Rayleigh, together with William Ramsay, discovered the inert gas argon, for which they won the Nobel Prize for Physics in 1904. This was the first time that the Nobel Prize, which had been established in 1901, had been awarded to someone working at the Ri. (Previously, scientific excellence had been recognised either by the award of the Copley Medal of the Royal Society or by election as one of eight foreign members of the *Academie des Sciences* in Paris.) To date, 14 further Nobels have been awarded to Ri scientists.

Although Dewar and Rayleigh's work was undertaken following the establishment of the new laboratory structure, theirs was really a continuation of 19th-century practice, with each individual pursuing

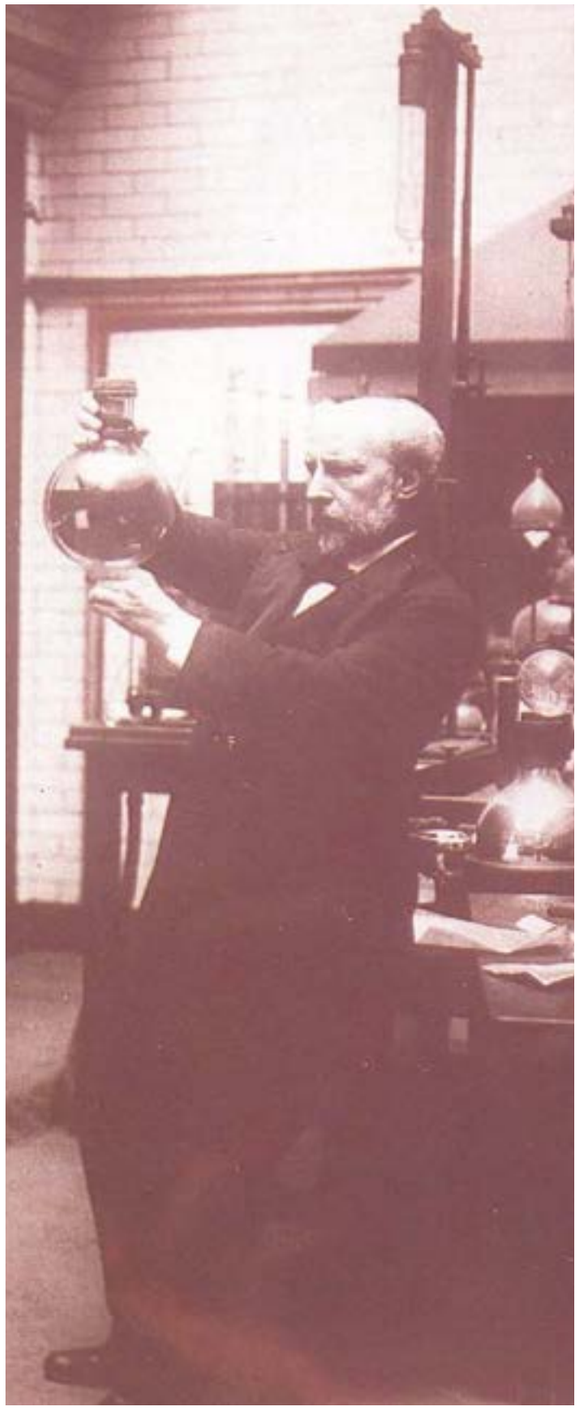

Fig 3.30 James Dewar holding a flask in his new laboratory. Alexander Scott, photograph, 1902, RIIC 0082

Fig 3.31 Ludwig Mond. A de Rohden, 1890, RIIC 0013

Fig 3.32 The opening of the Davy-Faraday Research Laboratory by the Prince of Wales on 22 December 1897. Illustrated London News, 1897, 110:25

Fig 3.33 Dewar delivering a Friday Evening Discourse in 1904 on liquid hydrogen. Henry Jamymn Brooks, 1905, RIIC 0050

their own research interests. This approach extended to other scientists in the early years of the laboratories, including Henry Tizard and Jagadis Chunder Bose.[33]

3.2.4 William Henry Bragg

The laboratory was to modernise further when William Henry Bragg (1862–1942, Fig 3.34) became Director in 1923. He had been educated at the University of Cambridge and had then taught mathematics and physics at the University of Adelaide in Australia, where his son William Lawrence Bragg (1890–1971, Fig 3.35) was born.[34]

William Henry Bragg had commenced working on radiation and X-rays by 1903, and was critical of some aspects of the theory of X-rays. So significant was his work that, in 1909, he returned to England as Professor of Physics at Leeds University. In 1912–13, with his son Lawrence – by now a research student at the Cavendish Laboratory, Cambridge – he worked out how to determine the structure of crystals using their X-ray diffraction patterns. For this, they jointly received the Nobel Prize for Physics in 1915 – at the age of 25, William Lawrence Bragg remains the youngest scientific Nobel winner.

During the Great War, William Henry Bragg worked for the Admiralty on the submarine detection systems, ASDIC and SONAR, and also moved to be Professor of Physics at University College, London. He was unhappy at University College and, following Dewar's death, leapt at the opportunity to take over the Ri. Here, Bragg built up a formidable team of researchers in crystallography, including John Desmond Bernal, William Thomas Astbury and, briefly, Dorothy Hodgkin – the only British woman to have won the Nobel Prize for Chemistry.

Another member of Bragg's team was Kathleen Lonsdale (Fig 3.36), who in 1945 became the first woman to be elected a Fellow of the Royal Society. In the 1920s, Lonsdale developed the theory of space groups to help determine where possibilities of molecular symmetry might occur. A century after Faraday had discovered benzene at the Ri, she demonstrated that its ring was hexagonal and planar, and also calculated its precise dimensions.

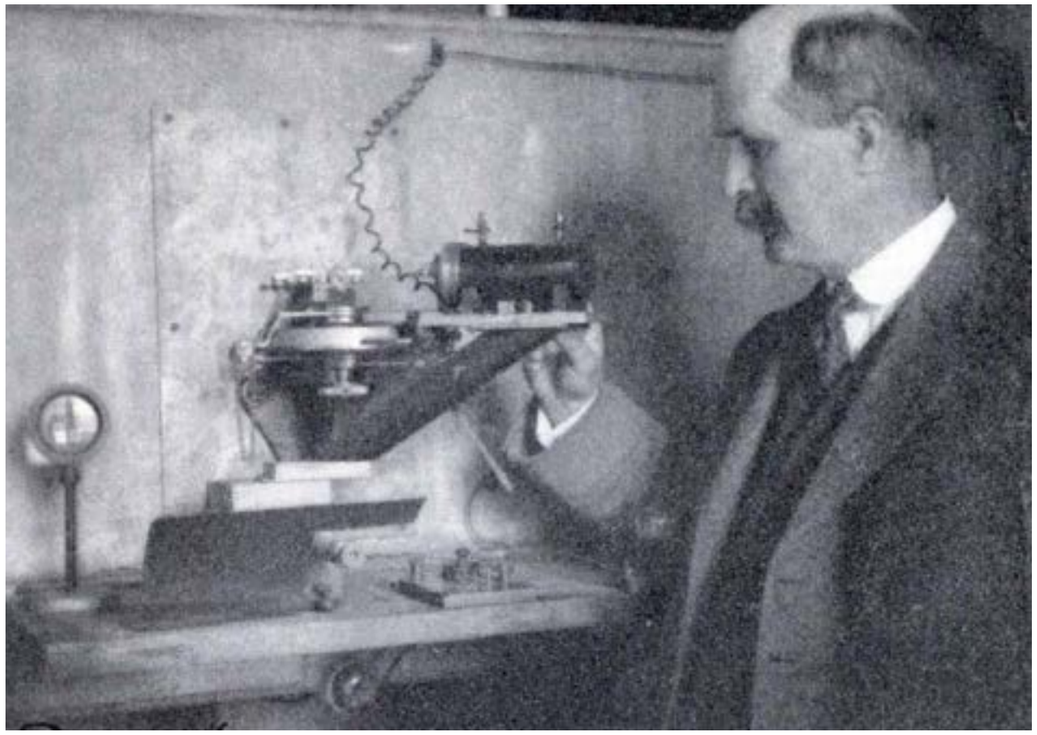

Fig 3.34 William Henry Bragg (with spectrometer). Ri Archival Collection

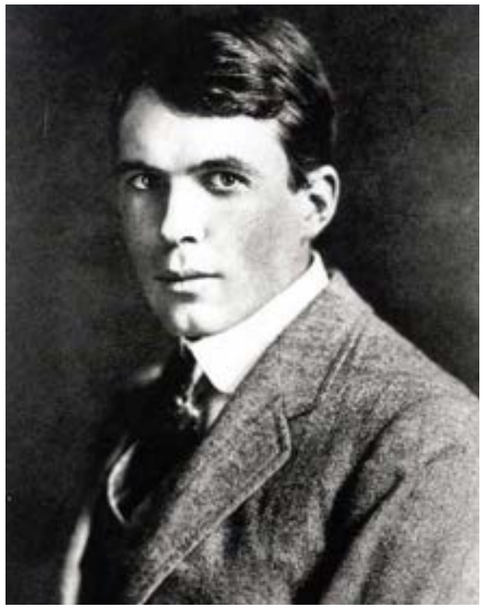

Fig 3.35 William Lawrence Bragg. Photograph taken around the time of his winning the Nobel Prize, 1915. Ri Archival Collection

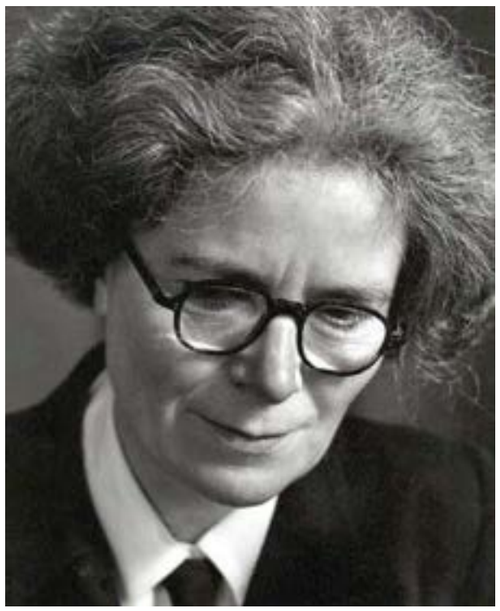

Fig 3.36 Kathleen Lonsdale. Lotte Meitner-Graf, c.1950 photograph Ri Archival Collection

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[33] Katherine D. Watson, "Temporary Hotel Accommodation'? The Early History of the Davy-Faraday Research Laboratory, 1894–1923' in James, *op.cit.* (2), pp.191-223.

[34] On the Braggs generally see Gwendolen Caroe, *William Henry Bragg 1862–1942: Man and Scientist*, Cambridge, 1978 and David Phillips and John Meurig Thomas, (eds.), *Selections and Reflections: The Legacy of Sir Lawrence Bragg*, Northwood, 1990.

The group at the Ri formed the core of what can be identified as the British school of crystallography and later of molecular biology.[35] Another prominent member of this school was, of course, William Lawrence Bragg. He served in Flanders during the Great War and after demobilisation succeeded Ernest Rutherford as Professor of Physics at the University of Manchester. In an informal agreement between father and son, it was decided that William would concentrate on the structure of organic molecules while Lawrence would work on inorganic materials, particularly minerals (Fig 3.37).

Lawrence remained at Manchester until the late 1930s when, after a brief period directing the National Physical Laboratory, he was appointed Director of the Cavendish Laboratory in Cambridge, again succeeding Rutherford. There, he too turned his attention to organic molecules with his group, which included Max Perutz, John Kendrew, Francis Crick and James Watson. In 1953, the latter two scientists, under Bragg's direction and using the techniques he had pioneered, determined the double helical structure of DNA. It was Bragg who wrote the placatory preface to Watson's somewhat biased view of the discovery in his book *The Double Helix* (1968).

Fig 3.37 William Lawrence Bragg and William Henry Bragg in Toronto in 1924. Ri Archival Collection

After William Henry Bragg

After the elder Bragg's death in 1942, the following three Directors each held the post for less than four years. Henry Dale (1875–1968, Fig 3.38) was fully occupied during his period of office, which coincided with the Second World War, as Chairman of the War Cabinet's Scientific Advisory Committee, which William Henry Bragg had helped to establish. The basement of the Ri became a designated bomb shelter, while the workshop was used by the Ministries of Supply and Aircraft Production. Dale tried to involve the Ri in the atomic bomb project but this proved impractical. Lonsdale kept research going – despite spending a month in 1943 in Holloway Prison for refusing, as a Quaker and conscientious objector, to register as civil defence worker.[36] Immediately after the war, she moved to University College, London.

The next director, Eric Rideal (1890–1974, Fig 3.39), was a colloid chemist. He tried to rejuvenate the Ri but could not cope with the antiquated administrative practices that were in place. Edward Neville da Costa Andrade (1887–1971, Fig 3.40) tackled the problems head on, but resigned after a furious row with the Secretary, Alexander Rankine (1881–1956), and a vote of no confidence by the Members.[37]

Fig 3.38 Henry Dale. Ri Archival Collection

Fig 3.39 Eric Rideal. Ri Archival Collection

Fig 3.40 Edward Neville da Costa Andrade. Ri Archival Collection

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[35] Viviane Quirke, 'A Big Happy Family': The Royal Institution under William and Lawrence Bragg, and the History of Molecular Biology' in James, *op.cit.* (2), pp.249-71.

[36] Dorothy Hodgkin, 'Kathleen Lonsdale', *Bio.Mem.Fell.Roy.Soc.*, 1975, **21**: 447-84, pp.452-4.

[37] Frank A.J.L. James and Viviane Quirke, 'L'affaire Andrade or how *not* to Modernise a Traditional Institution', in James, *op.cit.* (2), pp.273-304.

3.2.5 William Lawrence Bragg

William Lawrence Bragg, at considerable cost to his reputation in the scientific community, moved from the Cavendish in 1954 to fill the vacancy. He was a much more patient man than Andrade and as a consequence was able to introduce some much-needed reforms. In the process, he became the first person to be denominated officially as Director of the Ri in 1965. (The conferment of this title had been one of the issues during the Andrade affair.)

Like his father, William Lawrence Bragg built a strong research team to work on X-ray crystallography in the Davy-Faraday Research Laboratory. Although Perutz and Kendrew remained at the Cavendish, they were appointed Readers at the Ri and there was close collaboration between the two laboratories. One of the results of this was the determination of the structures of haemoglobin and myoglobin, for which Perutz and Kendrew won the Nobel Prize for Chemistry in 1962.

Another major piece of work carried out by Bragg's team, particularly by David Chiltern (later Lord) Phillips (1924–1999), was the determination of the structure of lysozyme. This substance, a constituent of tears and egg white, was the first enzyme structure to be completely solved. The original model (Fig 3.42) and Bragg's drawing of lysozyme are in the collections of the Ri. Dale later wrote to Bragg, 'It is cheering to recognise the extent to which research in "Molecular Biology", first at Cambridge and now at Oxford, will have been pioneered from the R.I.'[38]

In 1954, Bragg established a major programme of Schools Lectures, which continue to flourish as the Science Shows and the Schools Programme.

3.2.6 George Porter and after

On Bragg's retirement in 1966, George Porter (1920-2002, Fig 3.45) was appointed Director, a position he held until 1985, when he became President of the Royal Society. He continued Bragg's administrative reforms by establishing a Council to replace the Managers and other committees. Research at the Ri then switched to investigating high-speed chemical reactions using photochemical methods. This had important practical applications in pioneering the use of lasers (Fig 3.44) in the treatment of cancer.

Early in Porter's directorship, there was a large fundraising appeal prompted by the centenary of Faraday's death. Money from this

Fig 3.41 William Lawrence Bragg delivering a Christmas lecture in 1961. Terence Cuneo, 1962, RIIC 0621

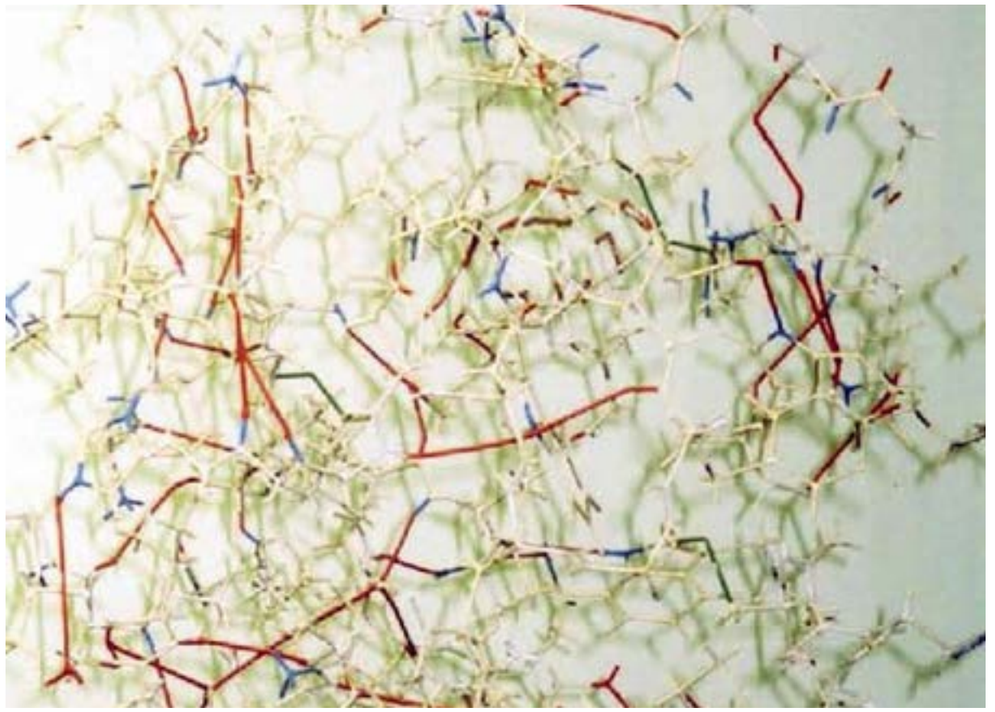

Fig 3.42 Model of Lysozyme made by David Chiltern Phillips and his team in the mid-1960s. RIAC 00701

[38] Dale to Bragg, 31 January 1966, RI MS WLB 11G/97. For a discussion of these issues see Quirke, *op.cit.* (35).

appeal was used to renovate the Faraday Museum, Archives Room and some third-floor laboratories, and to build the Bernard Subley Lecture Theatre on the ground floor. Porter was also instrumental in founding the Ri Mathematics Masterclasses in 1979, following Christopher Zeeman's very successful 1978 Christmas Lectures (the first time the subject had been covered). Now run in 39 centres throughout the country, the Mathematics Masterclasses are attended by about 3,000 young people annually. A primary level programme, commenced in the spring of 1999, now has about a dozen centres. Porter also established the science seminars at the Civil Service Staff College.

Following Porter's retirement, solid state chemistry became the dominant topic of research under the directorships of the chemists John Meurig Thomas (1985–1991) and Peter Day (1991–1998). In 1998, the directorships of the Ri and Davy-Faraday Research Laboratory were separated. Richard Catlow, Wolfson Professor of Natural Philosophy, took over the latter, undertaking work on solid state chemistry using advanced computational and experimental techniques. The neuroscientist Susan Greenfield, who had been the first woman to deliver the Christmas Lectures in 1994, was appointed Director of the Ri. Under Greenfield's direction, the public programmes increased dramatically, and the Ri entered its third century still promoting 'the application of Science to the common Purposes of Life'.

Fig 3.43 David Phillips delivering a Friday Evening Discourse on lysozyme on 5 November 1965. Ri Archival Collection

Fig 3.44 Early laser used by Porter in his work on high-speed photo-chemical reactions. RIAC 00690

Fig 3.45 George Porter demonstrating his research to the Queen on the occasion of her visit to open the Faraday Museum on 5 February 1973. Ri Archival Collection

3.3 History of the site and buildings

3.3.1 Brief summary

The buildings of the Ri stand in the London district of Mayfair, on the former site of Clarendon House. No 20 was constructed early in the 18th century, while No 21 began its existence in the early 1720s as a northern extension to No 20. The two properties were divided in 1755. Considerable alterations and additions were then undertaken to No 21, including the construction of the Grand Staircase (almost certainly to the design of John Carr) in the 1770s.

Shortly after its foundation in 1799, the Ri purchased No 21. In the following three years, under the supervision of Thomas Webster, the building was converted into a scientific institution, with lecture theatres, laboratories, libraries, workshops and display areas as well as living quarters, offices and the necessary infrastructure.

Since the original conversion work, building programmes have been undertaken to meet the evolving requirements of the Ri. For example, the Corinthian-columned facade, designed by Lewis Vulliamy, was added in 1837 to highlight the fact that that activities within No 21 stood apart from the other buildings in Albemarle Street.

In the 1850s, the small basement theatre was turned into a laboratory. This in turn was demolished in 1872 and a two-storey laboratory block built in its place. In the mid-1890s, Ludwig Mond purchased No 20 and gifted it to the Ri, reuniting Nos 20 and 21 after a period of nearly 150 years. William Flockhart designed new laboratories in the basement, ground, third and fourth floors of No 20, while the first and second floors were given over to accommodation, offices and libraries.

Following an electrical substation explosion on the lower ground floor in 1927, the entire northern end of No 21, including the main Theatre, was stripped out to basement level and reconstructed as a steel-frame structure, with designs by Leonard Rome Guthrie. This work, which also incorporated a five-storey eastern extension, was completed by the end of 1930. In the mid-1930s, the structure of the southern part of No 21 was found to be unsound. This too was stripped out to basement level and a steel frame structure inserted, again to the design of Guthrie.

The Ri bought 19 and 18 Albemarle Street in the 1930s and 1960s respectively. Although originally intended for income generation, most of the space within No 19 and part of No 18 were used by the Ri. The Institution sold Nos 18 and 19 in the 2000s, while the freehold of No 20 is held by the Ri on behalf of the Mond Trust, and

Fig 3.46 The Grand Stair Hall

No 21 is held on a lease from the Corporation of London, which expires in 3921. This division between freehold and leasehold has played a major role in the development of the site from the early 18th century until the present.[39]

Between the 1930s and the early 2000s, works mainly focused on routine maintenance. In the late 1960s and early 1970s, significant refurbishment works included the construction of a small theatre, the Faraday Museum and an archives room. Between 2004 and 2008, Terry Farrell and Partners oversaw a major renovation scheme, improving circulation and access, constructing exhibition spaces, a permanent archive vault and reading room, and upgrading visitor facilities.

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[39] There have been a number of previous studies of the history of the site and buildings to which this narrative is indebted. These are Alban D.R. Caroe, *The House of the Royal Institution*, London, 1963; H.J.V. Tyrrell (1), *Guides to the Royal Institution of Great Britain 2: The Site and the Buildings*, London 2001; *idem*.(2), 'The Mayfair Properties of the Royal Institution', Proc.Roy.Inst., 2001, 71: 201-29; *idem*.(3), 'Acquiring and Constructing the Royal Institution in Mayfair' in James, *op.cit.* (2), pp.43-58. While this narrative differs in interpretation, and occasionally in fact, from these earlier accounts, that merely recognises the continuing efforts to unravel this complex story.

3.3.2 Chronology of building development

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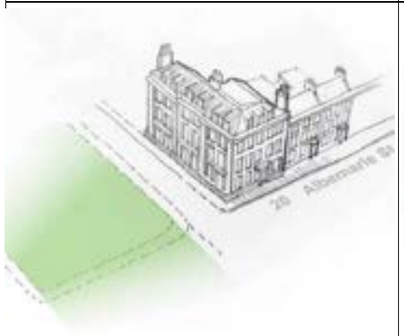	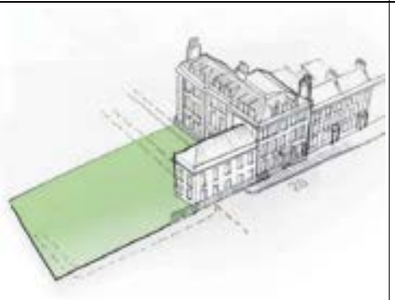	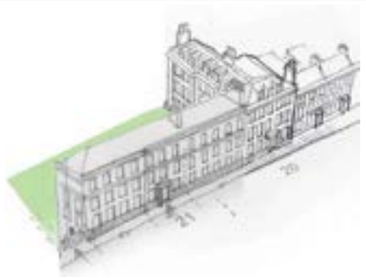	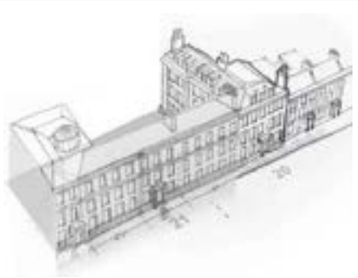	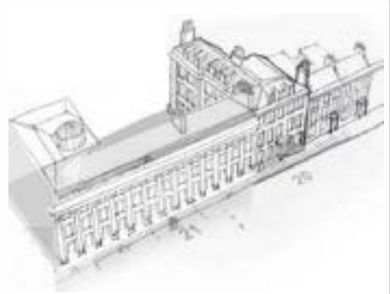
1704 Construction of No 20 Albemarle Street as a Corner House (see example from St James' Square below). Vacant space planned for Albemarle Square onto which the principal facade faces.	**1722 No 20 extension** Extended following successful petition to prevent square from being developed. The land in green is adopted as garden.	**1740s Development of No 21** Developed as a separate house with garden and stables accessed via a lane on the northern boundary.	**1800 Purchase for Ri** Purchase of No 21 to house the Ri and development of the theatre on the northern end. The former garden houses these additions and provides space for laboratories at lower ground floor level.	**1840 Vulliamy facade is added to No 21 housing the Ri** This rationalised the facade and emphasised the public role of the Institution in contrast to its domestic origins.

3.3.3 Until 1703: The land and early development

To understand the complex history of the Albemarle Street buildings, it is necessary to appreciate the initial laying out of this area of London. The site lies approximately 3.7km west of London Bridge and 1.6km north-west of the Palace of Westminster, between the ancient roads of Oxford Street and Piccadilly that lead west out of the City of London. The underlying geology is the chalk of the Thames Basin overlain with gravel and clay. The topography is determined by the River Tyburn (now covered), which flows in a south-east direction from Hampstead to the Thames, passing approximately 100m south-west of the site. The erosion caused by the Thames and Tyburn accounts for the site being on an incline facing south and west respectively. While there have been pre-Norman Conquest finds just to the south of Oxford Street, three recent archaeological reports from nearby sites indicate little of interest in the immediate area of 21 Albemarle Street.[40] This absence suggests that the land was used mostly for farming until the 17th century.

In the Saxon period, both the freehold and leasehold land of the site belonged to the Manor of Eia, which was part of Ossulstone Hundred. After being held by a number of individuals,[41] by 1087 the manor had been given to Westminster Abbey. In 1536, the Abbey was forced by Henry VIII to exchange it for properties elsewhere in the country.[42] On the southern part of the land, the King commissioned the building of St James's Palace, on the site of a medieval hospital of the same name, while the northern part, amounting to 24 acres, was leased to the Corporation of London. This area, known as Conduit Meads, was a meadow, used mostly for farming, over which one of the conduits carrying water to London had passed since at least the 13th century.[43] In 1629, Charles I sold the northern part of the holding to the Corporation of London for £200.[44] Until the Commonwealth, both parts of the land continued to be used for farming, as can be seen on a 1658 map (Fig 3.47).

Fig 3.47 Falthorne and Newcourt's 1658 map of the area. The circle marks the future location of the Ri. St James's Palace can be seen centrally located at the foot of this detail

[40] These investigations by the London Archaeological and Research Centre in the neighbourhood were at 40-41 Conduit Street (site record CDT96), the Royal Academy (RLA00), 1-5 New Bond Street (NBD94) and 17–18 New Bond Street and 11–12 Clifford Street (NBT95). This latter report, in the absence of the appropriate volumes of both the *Survey of London* and the *Victoria County History*, contains a useful detailed account of the geology and early archaeology of the Tyburn valley.

[41] See Ann Williams and G.H. Martin (eds.), *Domesday Book: A Complete Translation*, London, 2002, p.363.

[42] 28 Henry VIII, Chapter XLII.

[43] B.H. Johnson, *Berkeley Square to Bond Street: The Early History of the Neighbourhood*, London, 1952, pp.4-8.

[44] CLRO Royal Contract Estate Sales Contracts, 1628-77.

Following the Restoration of Charles II in 1660, the Crown made freehold grants to a number of powerful politicians of land running immediately from the north of Piccadilly to the southern boundary of the Conduit Meads.[45] On these plots, several palatial houses were built, of which only Burlington House (now housing the Royal Academy) survives. Devonshire House was not demolished until 1924.[46] In between these two houses, Clarendon House (Fig 3.48) was built between 1664 and 1667 for the Lord Chancellor, Edward Hyde, Earl of Clarendon. On 7 March 1667, just as Clarendon House was being completed and just before Clarendon fell from power, he purchased a 99-year lease on the Conduit Meads from the Corporation of London. This land was to provide a park for his house.[47]

After Clarendon's death, his son sold the house for £25,000 to Christopher Monck, 2nd Duke of Albemarle, who renamed it Albemarle House.[48] In turn, in 1683 he sold it to a syndicate, comprising John Hinde, Cadogan Thomas and Richard Frith, who immediately began to demolish the house[49]. The syndicate also purchased the 99-year Conduit Meads lease, the entire site being generally known as Albemarle Ground.[50] It then leased the land for building purposes to a partnership of Sir Thomas Bond, Henry Jermyn, Baron Dover and Margaret Stafford.

After the demolition of Clarendon House, the syndicate laid out its freehold land with the plots of what soon became Dover, Albemarle and Bond Streets, together with Stafford Street, which linked them about half way up on an east-west axis, and a similar road at the northern end (Fig 3.49).[51] To the north of this was to be Albemarle Square (Fig 3.50).[52]

The Bond, Dover and Stafford partnership began its building work, albeit slowly, at the Piccadilly end of Albemarle Ground. However, Hinde got into financial difficulty and began to sell off some of the freeholds. He was declared bankrupt in 1685, imprisoned, and died on 27 January 1687. The legal difficulties caused by this lasted until at least 1707, slowing the development of Albemarle Ground. John Strype, writing in 1720, commented that the syndicate 'not being in a Condition to finish so great a work, made Mortgages, and so

Fig 3.48 Clarendon House

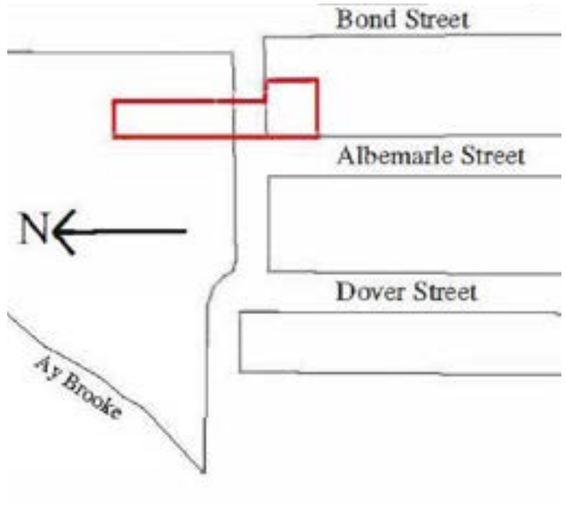

Fig 3.49 A 1694 plan showing the original layout of Bond, Albemarle and Dover Streets. The thick outline shows the current footprint of Nos 20 and 21. CLRO CCLP 441

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45 Johnson, *op.cit.* (43), pp.38-9.
46 David Pearce, *London's Mansions: The Palatial Houses of the Nobility*, London, 1986, p.154.
47 CLRO Lease Box 90, no. 1.
48 Johnson, *op.cit.* (43), p.79.
49 *Ibid*., pp.80–1, 86. Pearce, *op.cit.* (46), pp.50-2.
50 Johnson, *op.cit.* (43), p.81
51 Tyrrell, *op.cit.* (39, 2), p.206.
52 Johnson, *op.cit.* (43), p.81-2. This latter road, but not Albemarle Square, and the northern end of the site is shown on a 1694 plan, CLRO CCLP 441. Albemarle Square is shown on an early 18th-century plan, CLRO CCLP 228.

intangled the Title, that it is not to this day finished, and God knows when it will. So that it lyeth like the Ruins of *Troy*'. [53] Nevertheless, the building that would become 19 Albemarle Street was first rated in 1704, while the following year No 18 was rated.[54]

3.3.4 1703–1722: 18, 19 and 20 Albemarle Street

In 1703, Dover sold the site of what was to become No 20 to Robert and Richard Frith (who may or may not have been related to the Richard Frith of the original syndicate).[55] Facing north onto the proposed Albemarle Square,[56] the house was built by the Friths and purchased by Henry d'Auverquerque, Earl of Grantham, to whom it was first rated in 1707.[57] Since the assignment of the lease to Grantham is dated 13 January 1706, it is possible that he might have had some say in the design. What is recorded is that the Friths undertook some minor work for Grantham after he had moved in.[58]

No 20 was on a far grander scale than its southern neighbours – nearly twice the size of either Nos 18 or 19, with double the rateable value, and with five window bays, unequally separated, rather than three. With scant documentary evidence from the time of construction, the reasons for its size remain a matter for supposition. Equally, the original height is unknown – the placing of the platt course suggests that it may originally have been only three storeys. The curiously substantial east-west spine wall also remains a matter for debate. Did the long (presumably principal) north-facing frontage incorporate a formal entry onto the proposed Albemarle Square? Observation of other corner houses in the area – for example, 10 St James's Square which is entered from Duke of York Street (Fig 3.51)[59] – show that it is quite possible that the main entrance was always onto Albemarle Street. This would make sense of the orientation of the staircase, which only works towards the street rather than the square.

As Chamberlain to Caroline, Princess of Wales, Grantham was typical of the aristocratic and government Figures who lived in Albemarle Street during the early 18th century. In 1708, Edward Hatton described it as 'a Street of excellent new Building, inhabited

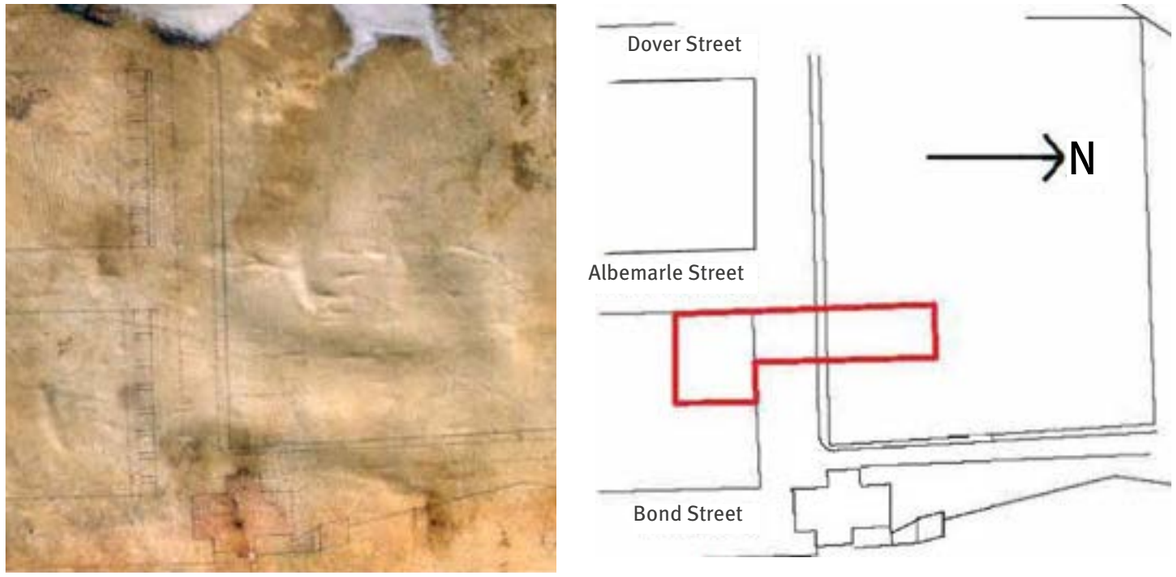

Fig 3.50 Early 18th-century plan showing the proposed Albemarle Square at the top of Bond, Albermarle and Dover Streets. The thick outline shows the current footprint of Nos 20 and 21. CLRO CCLP 228

Fig 3.51 10 St James's Square, entrance on Duke of York Street

[53] John Strype, *A survey of the cities of London and Westminster ... brought down from the year 1633*, 2 volumes, London, 1720, **2**: bk.6, p.78.
[54] St Martin's in the Fields rate books for 1704 and 1705: CWAC, F3854 for 19; F3884 for 18.
[55] RI MS RI/1/L/1/1.
[56] Johnson, *op.cit.* (43), pp.130–1.
[57] St Martin's in the Fields rate book for 1707, CWAC, F5239. See also RI MS RI/1/L/1/1 and CLRO Lease, Box 90, no.2.
[58] Grantham's receipt book, 1700–1719, HALS MS D/E Na A 27.
[59] This was built in 1736 – see Nikolaus Pevsner and Bridget Cherry, *The Buildings of England. London I. The Cities of London and Westminster*, 3rd edition, Harmondsworth, 1973, p.645.

by Persons of Quality, between the Fields and Portugal Str'.[60] (This suggests that Strype's later account was somewhat exaggerated.) On 13 December 1717, Grantham, of whom it was said that he 'was for ever in doubt what he should do, and always at last determined to do what he should not',[61] gave refuge in No 20 for a few months to the Prince of Wales, later George II, and the Princess, who had fled St James's Palace due to the hostility of the King, George I.[62]

In 1707, the year after Grantham had bought No 20, the lease on four acres of the Conduit Meads became available from John Sheffield, 1st Marquis of Normanby, who had acquired it from the Corporation of London in 1694.[63] Grantham and some neighbours, including Charles Fitzroy, 2nd Duke of Grafton, purchased the land, which took their holdings to what is now Grafton Street. Within two years, they had obtained a writ of *ad quod damnum* to move the east-west road on which No 20 stood 90ft to the north so that the property could have a garden. This marked the end of the planning for Albemarle Square. In 1723, they obtained a second writ to move the road again to the alignment on which Grafton Street (originally called Evans Row[64] and then Albemarle Row) is found. The line of both former roads is shown on plans from c.1760 (Fig 3.52) and 1764 (Fig 3.53). The later move was commented on in the *British Journal* for 30 March 1723, which said it was 'for gardening; and the Road there leading to May-Fair is order'd to be turned'.[65]

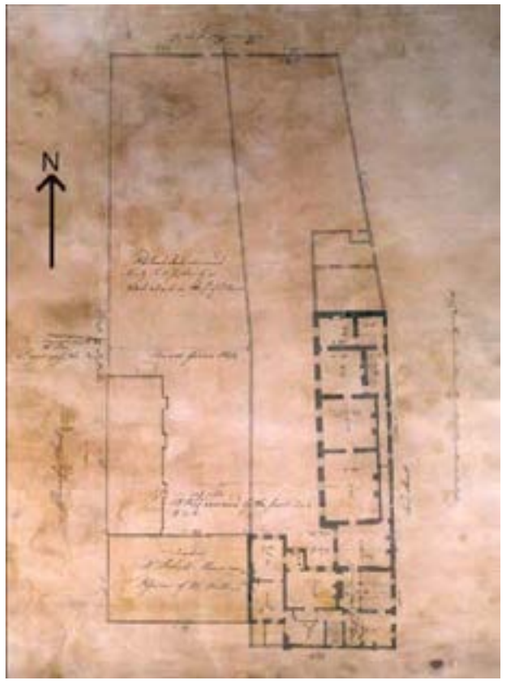

Fig 3.52 A c.1760 plan of the northern ends of Albemarle and Bond Streets. CLRO CCLP 190a

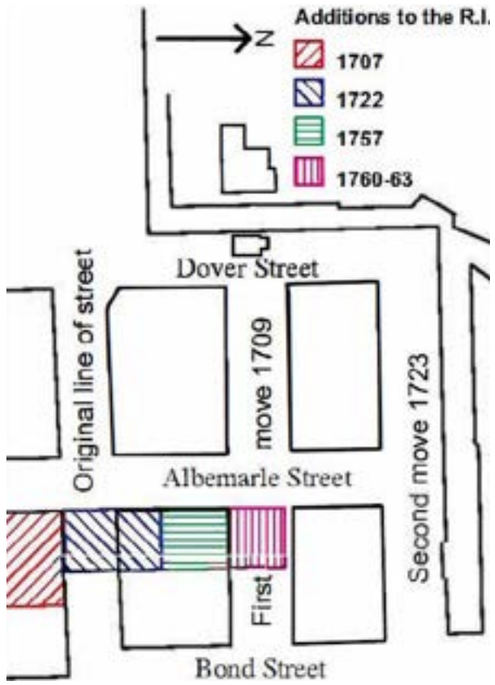

Fig 3.53 A 1764 plan showing the development of the area during the 18th century. CLRO CCLP 386a

3.3.5 1722–1750: Northward extension (No 21)

While the garden was clearly important to Grantham, he also decided to expand No 20 northwards. In 1722, the rateable value of No 20 increased from £100 to £120[66] – the earliest evidence suggesting that the construction of an extension may have commenced. This extension, later to become No 21, is shown on the 1725 map of the newly formed Parish of St George Hanover Square, together with the northern boundary of Evans Row (Fig 3.54); both are also shown on John Rocque's 1746 map of London (Fig 3.55). Measurement of the maps suggests that, in the initial construction phase, the building had reached what is now the southern wall of

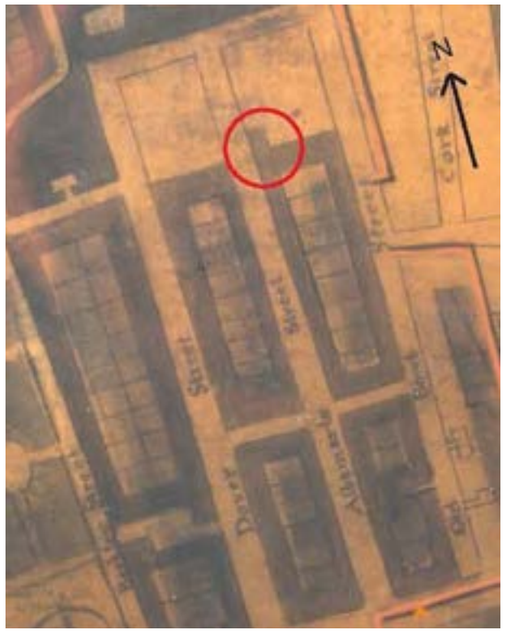

Fig 3.54 Albemarle Street and neighbourhood from the 1725 map of the new parish of St George Hanover Square (CWAC). The circle marks the beginning of No 21

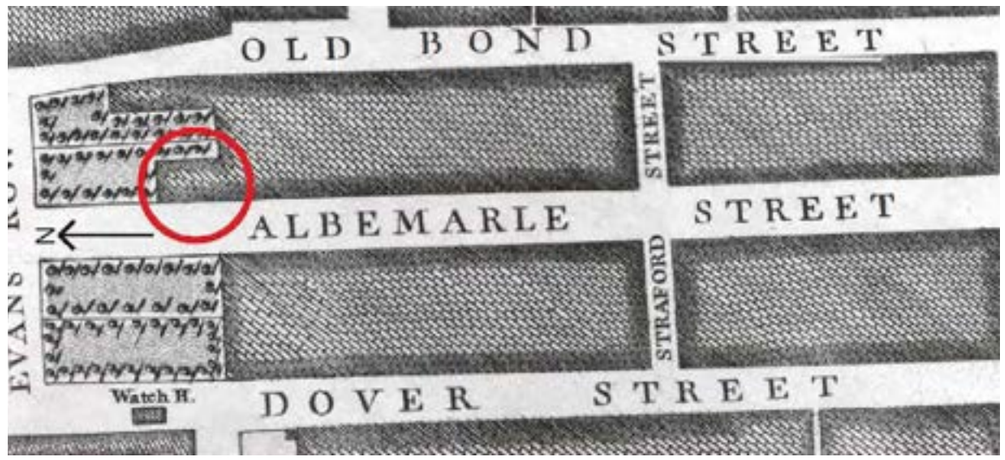

Fig 3.55 Albemarle Street and the immediate neighbourhood from John Rocque's 1746 map of London. The circle marks the site of No 21

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[60] [Edward Hatton], *A New View of London*, London, 1708, p.1. The western end of Piccadilly was known as Portugal Street (in honour of the Queen of Charles II) until well into the eighteenth century. See Roy Porter, *London: A Social History*, London, 1994, p.132 for a general account of the development of the area.

[61] John Hervey, *Memoirs of the Reign of George the Second*, 3 volumes, London 1884, **1**: 333.

[62] For the background to this episode see R.L. Arkell, *Caroline of Ansbach: George the Second's Queen*, London, 1939, pp.100-5.

[63] CLRO Lease, Box 90, no. 3A. Tyrrell, *op.cit.* (39, 2), p.204.

[64] As shown on Rocque's 1746 map.

[65] Quoted in Johnson, *op.cit.* (43), p.146.

[66] St Martin's in the Fields rate book for 1721, CWAC, F5527.

the Grand Entrance. It is probable that at this time the extension only rose to first floor level; this is supported by the difference in floor and ceiling heights at second floor level between Nos 20 and 21, which does not exist at lower levels. An interesting comparator survives in the form of a smaller mid 18th-century extension of this type along Charles Street from 52 Berkeley Square (Fig 3.56).[67] On the evidence that the rateable value did not rise until 1754,[68] when there was an increase from £150 to £160,[69] it seems likely that little further construction work was undertaken to No 20 between the early 1720s and mid-1750s.

3.3.6 1750–1799: Mid to late 18th-century alterations

Precisely when the decision to split Nos 20 and 21 was taken is not known, but a year after Grantham's death on 5 December 1754, the houses were rated as separate entities at £80 each.[70] Both were purchased by John Roberts,[71] a government official and later an MP. He occupied No 20, while William Mellish, also a government official and a former MP, lived in No 21.[72] In 1758, three years after moving in, Roberts and Mellish swapped houses.[73]

In 1755 and 1756, immediately following the split, No 21 was rated for stables.[74] However, these were never referred to again in the rate books. It is thought likely that the stables were built at the end of Grantham's life (accounting for the increase in rates), but demolished when the houses were split, to allow for a stairwell to be added to No 21. The addition of a second floor in the mid-1750s may be the reason for a further increase in the rateable value of No 21 by £10 in 1758. A map drawn shortly after the division of the properties shows that by 1754 the building had reached the north end of the ground now occupied by the Grand Entrance and that a projection, presumably the service staircase, existed at the north-east corner. A 1763 plan (Fig 3.57), possibly made in readiness for the expiration of the Conduit Meads lease, shows no such projection. Measurement of the plan suggests that, by this time, the building had been further extended to what is now the

Fig 3.56 52 Berkeley Square

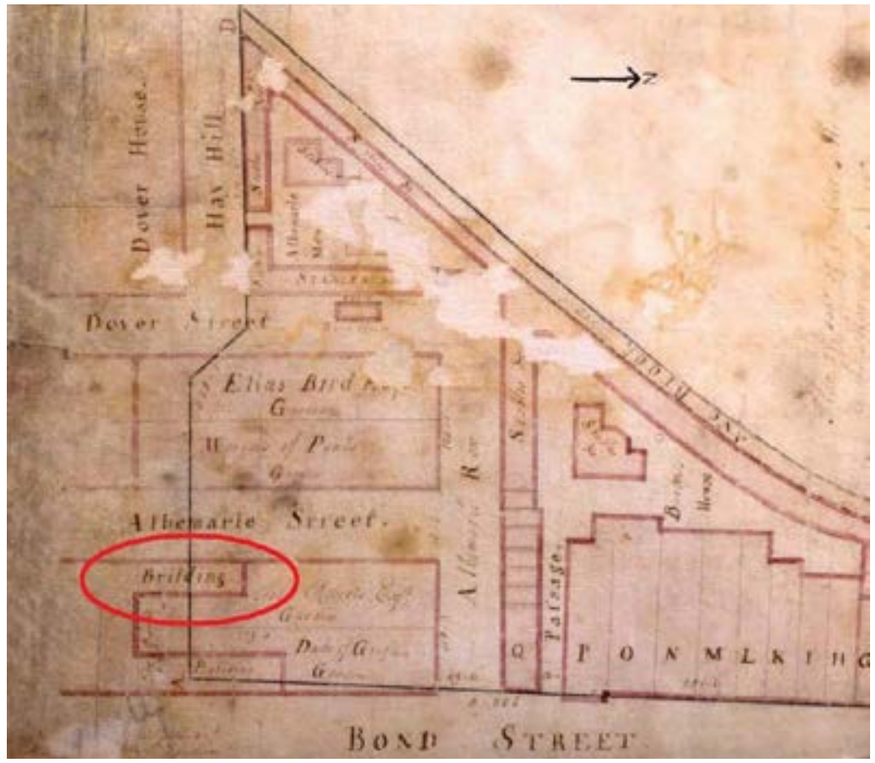

Fig 3.57 A 1763 plan of the northern ends of Bond, Albemarle and Dover Streets. CLRO CCLP 565. The eclipse marks No 21

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67 Pevsner and Cherry, *op.cit.* (59), p.558. See also Johnson, *op.cit.* (43), p.178.

68 In 1725 a new parish, St George, Hanover Square, was carved out of the old parish of St Martin's in the Fields, so populous had the area become, and the £30 increase in the rateable value made that year can be attributed to this administrative change. St George, Hanover Square, rate book for 1725, CWAC, C89. The rateable value of all the other properties in Albemarle Street also increased, proportionately, at this time.

69 St George, Hanover Square, rate book for 1754, CWAC, C293.

70 St George, Hanover Square, rate book for 1755, CWAC, C296.

71 RI MS RI/1/L/1/1.

72 St George, Hanover Square, rate book for 1755, CWAC, C296.

73 St George, Hanover Square, rate book for 1758, CWAC, C300.

74 St George, Hanover Square, rate books for 1756 and 1757, CWAC, C297 and C298.

northern wall of the main entrance, and that the service staircase had been incorporated within the building. This hypothesis is not, however, supported by a corresponding increase in rateable value. When the 99-year lease on the Conduit Meads that had been granted to Clarendon expired in 1767, the Corporation of London granted Roberts a 61-year lease perpetually renewable every 14 years on payment of a renewal fine, initially set at £600.[75] The year after securing the lease Roberts sub-leased, on similar terms, the northern part of the garden to a developer, Edward Gray, who built what would become 22 and 23 Albemarle Street.[76]

The increase in the rateable value of No 21 by a further £20 to £110 in 1772 provides evidence for the further northern extension to what is now the north wall of the Sunley Room. This left Roberts with only a narrow access to the garden from the street (see Richard Horwood's 1790s map, Fig 3.59), space in which outside toilets were built at basement level.[77] Since this is the last rate increase attributable (on cartographical evidence) to new building, it appears that No 21 had by 1772 reached the extent of what was to be purchased by the Ri.

Roberts died on 13 July 1772 and three years later Mellish, acting on behalf of Roberts' heirs, sold No 20 to Thomas Powys, later Lord Lilford. Mellish himself moved back into what was now an enlarged No 21. The properties were consequently finally separated both physically and in terms of ownership. In 1772, Mellish also perpetually leased parts of the basement at the south end of No 21 to Powys.[78] Whether this was a new arrangement or the confirmation of an existing one is not known.

Mellish's pre-move works seem to have been accompanied by substantial interior alterations to both Nos 20 and 21. There is very strong circumstantial and design evidence that this work was undertaken to the designs of his close friend, John Carr. Considered at the time to be the leading architect in northern England, Carr stayed at No 21 when in London.[79] From the late 1760s until the mid-1780s, he certainly undertook a considerable amount of work at Mellish's Nottinghamshire seat, Blythe Hall. It was probably also

Fig 3.58 7 Albemarle Street showing earlier facade

Fig 3.60 The Grand Staircase in the Ri before 2004

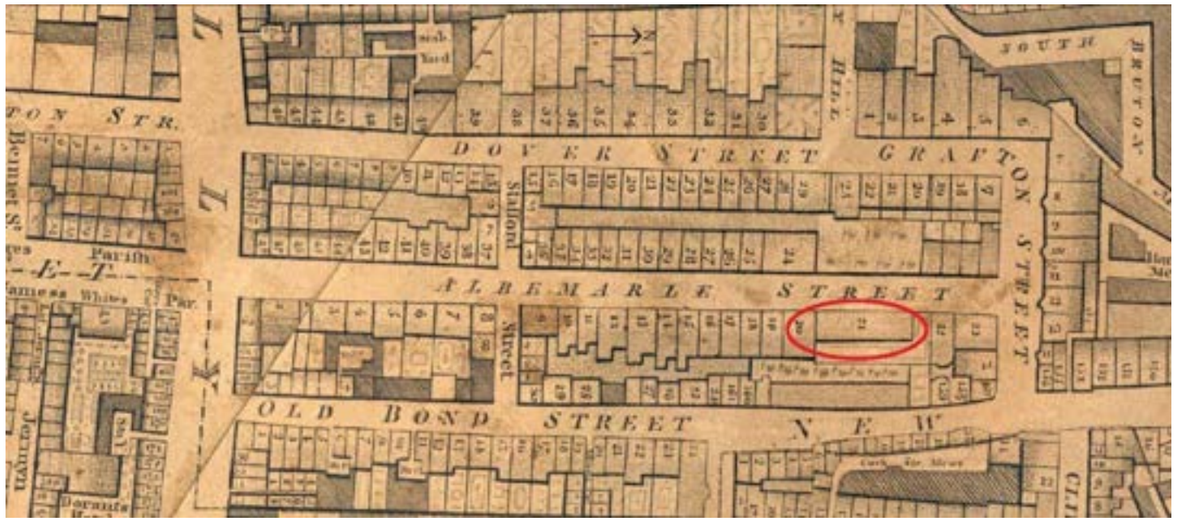

Fig 3.59 Albemarle Street and the immediate neighbourhood from Richard Horwood's 1790s map of London. The ellipse marks No 21

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75 CLRO Lease, Box 107a, no. 2. For the complex negotiations behind this see Tyrrell, *op.cit.* (39, 2), pp. 209, 211.

76 Agreement of 19 May 1768, RI MS RI/1/L/1/3. Consideration of these properties, which are now occupied by Asprey and Gerrard on sub-leases from the Royal Institution, is outside the scope of this document. For further details, however, see Tyrrell, *op.cit.* (39, 3), pp.53-6.

77 Soane Museum, plan 51/1/45.

78 RI MS RI/1/L/1/8.

79 Brian Wragg, *The Life and Works of John Carr of York*, ed. by Giles Worsley, York, 2000, p.51. For a specific example see Carr to Egerton Family, 3 June 1787, HALS AH 2311.

Mellish, who had links with Portugal, who secured Carr's contract to design the Hospital de Santo Antonio do Porto in Oporto.[80]

The fact that No 21 was not rated during 1773 and 1774[81] suggests that the house was vacant while interior building work was going on. Circumstantial evidence for Carr's involvement include unaccounted-for payments made by Mellish to Carr for £42 in June 1773 and £82 2s in February 1774.[82] The case for Carr's involvement in No 21 is further supported by design evidence, not least through comparison of the detail of the balustrading and plasterwork of the Grand Staircase with that of Carr's Imperial Staircase at Wentworth Woodhouse, albeit built three decades later (Fig 3.61 – Fig 3.64).[83] Furthermore, the steps of the Grand Staircase are identical in section to those of one of the staircases at Basildon Park, built to the design of Carr in 1776 (Fig 3.65).

The Carr-like design of the metal balusters on the lower flights of the staircase of No 20 (Fig 3.66) suggests that these too may be by Carr, undertaken before the house was sold to Powys. It has been suggested[84] that Carr may have been involved more extensively with the alteration of No 20. For example, the decorative detail on the panelling of the door jambs into the writing room, which paint analysis has established to be 18th-century, also recalls Carr's work at Basildon Park. A depiction by Thomas Rowlandson executed in about 1808 of the southern room (now the Library) on the first floor of No 21 shows a plaster ceiling also reminiscent of Carr's work elsewhere (Fig 3.67). This ceiling is recorded in an 1862 etching, but what became of it is not clear.

While changes in plans and rateable values have enabled a tentative timeline to be established for the development of the structural walls of No 20 and 21, it has not yet been possible to determine when the sizeable subterranean domestic service areas in the south-east corner and the outside toilets (as shown on a 1799 plan[85]) were built. Since they are not on the maps of the 1760s, it may be that they were introduced at the same date as the northern extension of 1772.

Mellish died on 16 December 1791. His widow, Anne, paid the rates until 1796 when No 21 was rated to their son, John Mellish.

Fig 3.61 Detail of the Grand Staircase balustrade

Fig 3.62 Detail of the Imperial Staircase balustrade at Wentworth Woodhouse

Fig 3.63 Detail of the plasterwork on the Grand Staircase

Fig 3.64 Detail of the plasterwork of the Imperial Staircase at Wentworth Woodhouse

Fig 3.65 Section of step at Basildon Park

Fig 3.66 Detail from No 20's staircase

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[80] Wragg, *op.cit.* (79), p.187.
[81] St George, Hanover Square, rate books for 1773 and 1774, CWAC, C316 and C318.
[82] Wragg, *op.cit.* (79), p.116.
[83] Illustrated in *ibid.*, p.99. This ascription will appear the forthcoming volume covering Westminster in the Pevsner *Buildings of England* series. Private communication from Simon Bradley to FJ, 12 January 2003.
[84] By Giles Worsley in conversation with FJ and AP, 28 January 2003.
[85] Soane Museum, plan 57/7/45.

On 9 April 1798, John Mellish was shot and killed by a highwayman on Hounslow Heath.[86] The property was put on the market a year later.

3.3.7 1799–1804: Purchase and conversion by the Ri

At the first meeting of the Managers of what would become the Ri, the Treasurer, Thomas Bernard, was asked to investigate the possibility of purchasing 'the late Mr. Mellish's House in Albemarle Street'.[87] Just under a month later, he and Benjamin Thompson, Count Rumford reported that No 21 might prove suitable for the Institution's needs.[88] Henry Holland and John Soane,[89] two pre-eminent architects who were Proprietors of the Ri, were asked to survey the property. Soane reported: 'Mr Holland and myself having surveyed the late Mr Mellish's House in Albemarle Street, which we find in good condition as to repair; that a great part of the Roof is covered with Lead; and that there is a piece of vacant Ground which is valuable to let for building, or to build offices upon'.[90]

Soane and Holland estimated the value of the house and its fixtures at £4,500, and on the strength of this report the Managers at their following meeting offered this sum for the property.[91] Although it took some months before the details of the purchase were finalised,[92] the first meeting of Managers was held at No 21 on 22 June 1799.[93] Our understanding of the form of the building at this time is greatly enhanced by the survival of a set of unsigned measured drawings (Fig 3.68), believed to have been executed by Soane's associate, James Spiller.[94] These are now in the collection of the Sir John Soane Museum.

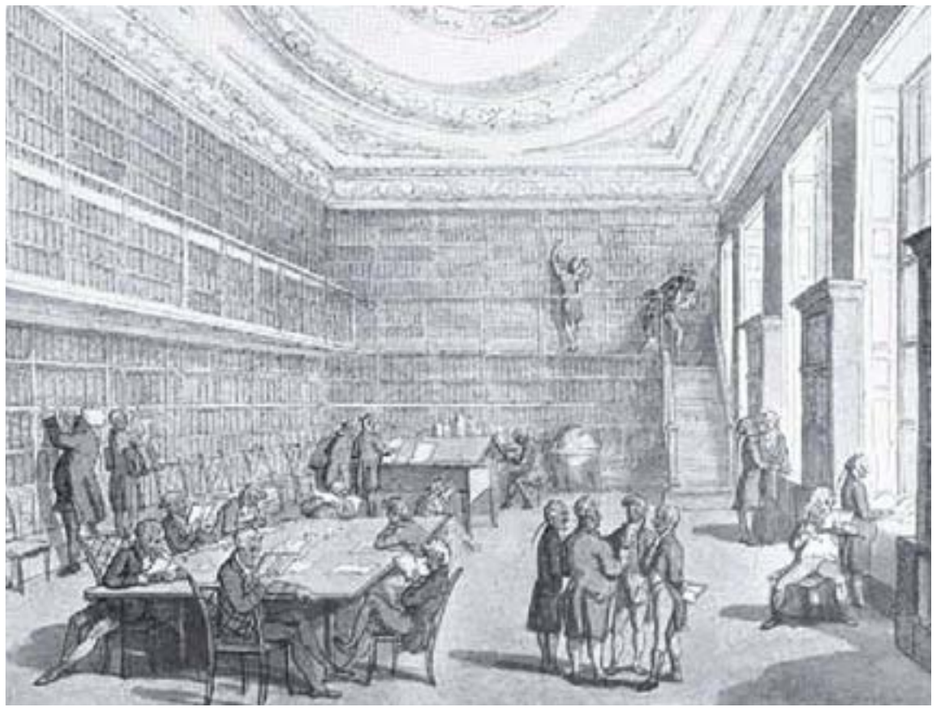

Fig 3.67 Thomas Rowlandson's watercolour depiction of the Library of the Ri, c.1806. From The Connoisseur, 1927, 79: 210. (The original has not been located)

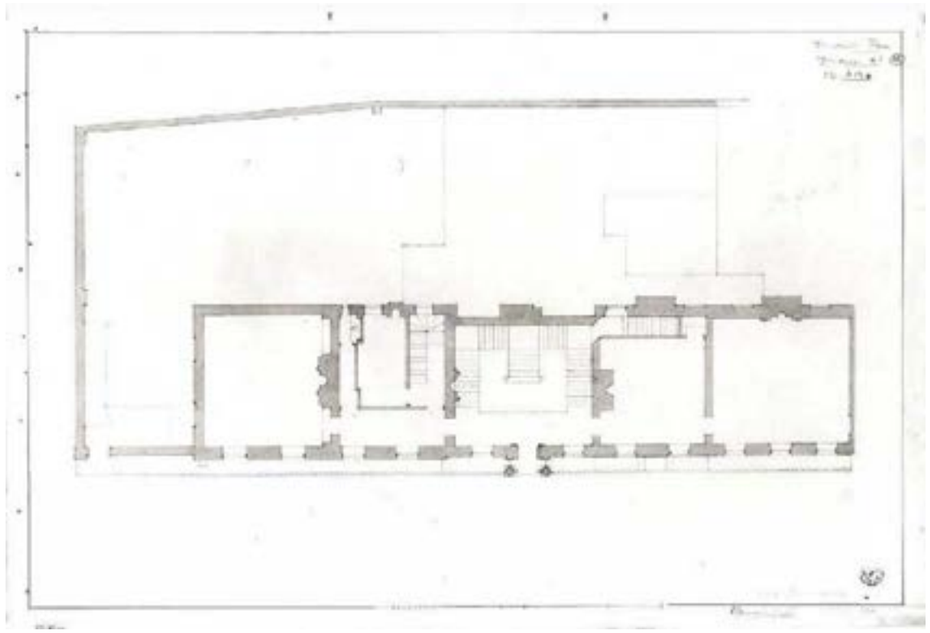

Fig 3.68 James Spiller's 1799 plan of the ground floor of No 21. Soane Museum 57/7/44

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86 *Gent.Mag*., 1798, **68**(1): 359.
87 RI MM, 9 March 1799, **1**: 4.
88 RI MM, 6 April 1799, **1**: 15.
89 Soane may have become involved through John Coxe Hippisley (1748–1825) whom he had known in Rome. Gillian Darley, *John Soane: An Accidental Romantic*, New Haven, 1999, p.144. Hippisley was an important figure in the early history of the Royal Institution who would succeed Bernard as Treasurer in 1800.
90 Soane to Bernard, 11 April 1799, RI MM, 13 April 1799, **1**: 19.
91 RI MM, 20 April 1799, **1**: 22.
92 RI MM, 14 September 1799, **1**: 55. The final sum was £4,850.
93 RI MM, 22 June 1799, **1**: 43-4.
94 Soane Museum, plans 57/7/44-8. In 2003, Margaret Richardson the then Curator of the Soane Museum identified, on stylistic grounds, the author of these plans to be James Spiller. Further research is required to establish the possible relationship between these Spiller drawings in the Soane Archives with those drawings which the Managers' Minutes of 31March 1800 record 'Mr Spiller, an exceptional surveyor, be employed (to execute)' and which the following month the MM noted 'plans, elevations etc have been presented by him to the Managers'.

Since the specified aims of the Ri were to promote science by 'Courses of Philosophical Lectures and Experiments',[95] the construction of at least one lecture theatre was a priority. This, together with everything else required to make the Ri an effective organisation, necessitated considerable additions and alterations be made to the building. To supervise this work, Thomas Webster was appointed Clerk of Works in September 1799.[96]

A lecture theatre was effected, as a temporary measure, 'by laying together the two large Rooms on the first Floor of the House'[97] – that is the two southernmost street-fronting rooms, today occupied by the single-space Main Library. The drawing collection of the Royal Institute of British Architects contains a number of sketches, apparently by Webster, proposing a variety of seating plans to accommodate an audience of 200 to 300 (Fig 3.74).[98] It is not known which of the designs was finally adopted, but by mid-January 1800 the temporary Lecture Room was 'nearly completed',[99] and on 11 March 1800 Thomas Garnett delivered the Ri's first lecture.[100]

A start was then made on the process of constructing a permanent lecture theatre, as well as all the other facilities needed by the Ri. The proposals on which Webster had been working were discussed at the end of January 1800.[101] By the time the Managers next met in early February, a detailed proposal was approved, with the plans including a theatre to hold nearly 1,000.[102]

The works set out in the proposal plan for the basement (Fig 3.69) involved the building of two laboratories and a school room for workmen.[103] The domestic area, including the kitchen facilities, would have been rearranged to allow Rumford to continue

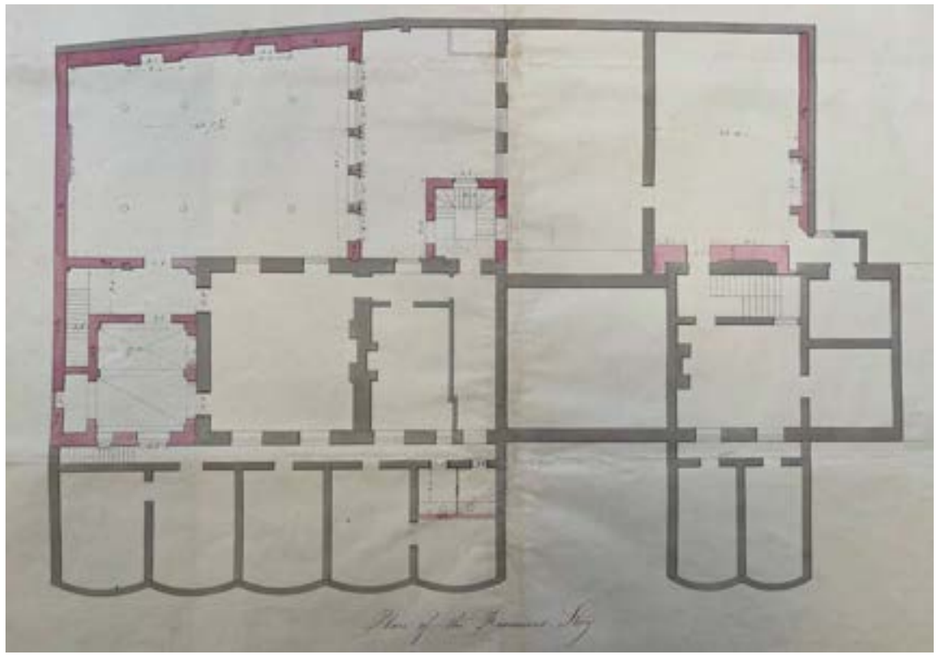

Fig 3.69 Drawing showing the form of No 21's basement at the completion of the works to turn it from town house to the home of the Ri. Although undated and unsigned, it is the precise and polished manner in which this plan is penned which prompts the conclusion that it was executed in spring 1804, by Mr Parnham, as a record of the completed scheme of works. Ri Ref. Ri/1/G/G/1

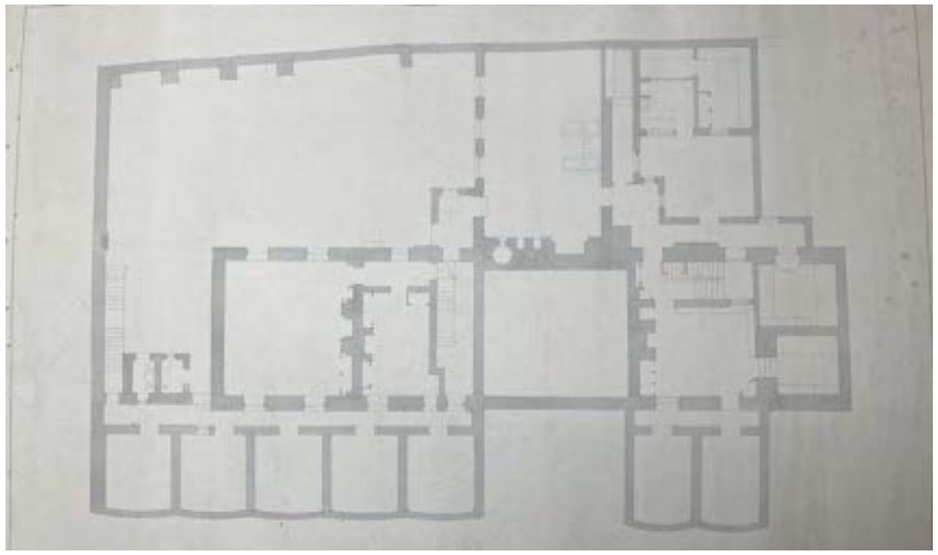

Fig 3.70 Record drawing of the form of No 21's basement floor prior to the commencement of the conversion of William Mellish's town house. In 2003, Margaret Richardson, the then Director of the Sir John Soane Museum, observed the handwriting and drawing style – on this set of unsigned and undated floor plans - to be that of James Spiller. Documentary records tell of the fact that in April 1800 Spiller was commissioned to prepare a full set of floor plans of No 21. Soane Ref. 57/7/45

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95 RI MM, 9 March 1799, **1**: 1.
96 RI MM, 14 September 1799, **1**: 57.
97 RI MM, 14 September 1799, **1**: 58. There were indeed two rooms here. However, Spiller's plan (Soane Museum, plan 57/7/46) shows the existence of one room only – perhaps Spiller was confused between the first and ground floors. Furthermore, it is not clear how this relates to the plaster ceiling.
98 RIBA drawing SD/55/4/6. Rumford, 'Report, relative to the Progress which has been made in the Arrangement of the Institution', *J.Roy.Inst.*, 1801, **1**: 17-28, p.18 says that it could hold 300.
99 RI MM, 13 January 1800, **1**: 84.
100 *Gent.Mag.*, 1800, **70**(1): 382.
101 RI MM, 27 January 1800, **1**: 98.
102 RI MM, 3 February 1800, **1**: 104–18. There has been some argument over who designed the Theatre (for example, 'The Royal Institution', *Architect J.*, 1941, **94**: 269-70, p.270). The plans in the RIBA collection associated with Webster together with other documentary evidence do suggest that the original design of a two tiered semi-circular theatre was Webster's. Faraday, in evidence given on 7 August 1835 to the Select Committee on the Ventilation of the New Houses of Parliament, stated that Webster was the architect of the Lecture Theatre (*Parliamentary Papers*, 1835 (583), xviii, pp.55-61) for which acknowledgement Webster thanked him (Webster to Faraday, 23 May 1836, Faraday, *Correspondence*, **2**: 920).
103 Described in RI MM, 14 September 1799, **1**: 55-60.

developing his ideas on diet.[104] On the ground floor (Fig 3.71), there would be a public repository,[105] a committee room, members' rooms, offices, a workshop and a room to house a printing press to produce syllabuses for lectures and other materials. On the first floor (Fig 3.72) would be the lower tier of a large semi-circular theatre with an ante-room to the north of the Grand Staircase and a library (in place of the temporary Lecture Room) to the south. The second floor would house the upper tier of the Lecture Theatre, but there was to be no change elsewhere, the existing rooms becoming offices and accommodation for members of staff.

While the basement's existing plan form needed little alteration, major structural works were required at the north end of the ground floor to accommodate the base of the Theatre on the floors above.[106] The proposal plans indicate an intention to build on the garden wall, with only two columns to support the Lecture Theatre. However, drawings of the as-built form show that the garden wall was actually rebuilt and eight columns installed.[107] It is not known when the doubts about the structural integrity of the design became apparent, but they might well be linked to the curious behaviour displayed by the Managers over the appointment of a Surveyor. At the end of March 1800, the Managers engaged James Spiller in this role.[108] Just under six weeks later they appointed George Saunders in his place.[109] The design-related problems had evidently been sorted out by 12 June 1800, when a contract was signed with the builder Thomas Hancock to carry out the work.[110]

In essence, the works were undertaken in accordance with the original proposals, but circumstances ensured that some further changes were required. One major addition was a new staircase, housed in a projecting bay, about halfway along the east side of the building. Running from the basement to the second floor, the stair allowed for the removal of the lower portions of the existing

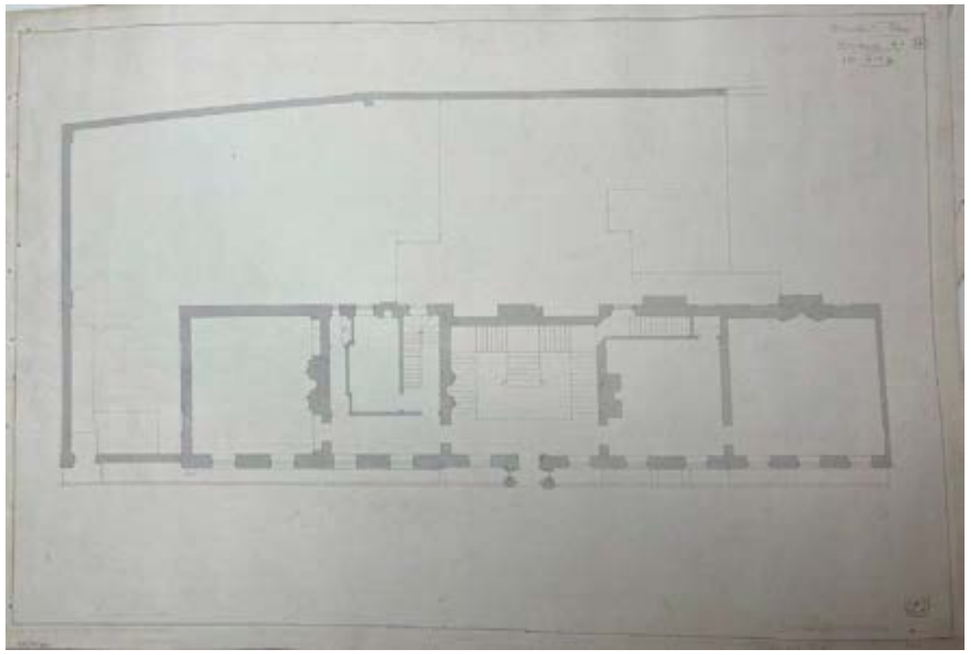

Fig 3.71 Spiller's April 1800 record drawing of No 21's ground floor prior to the commencement of its conversion. Soane Ref. 57/7/44

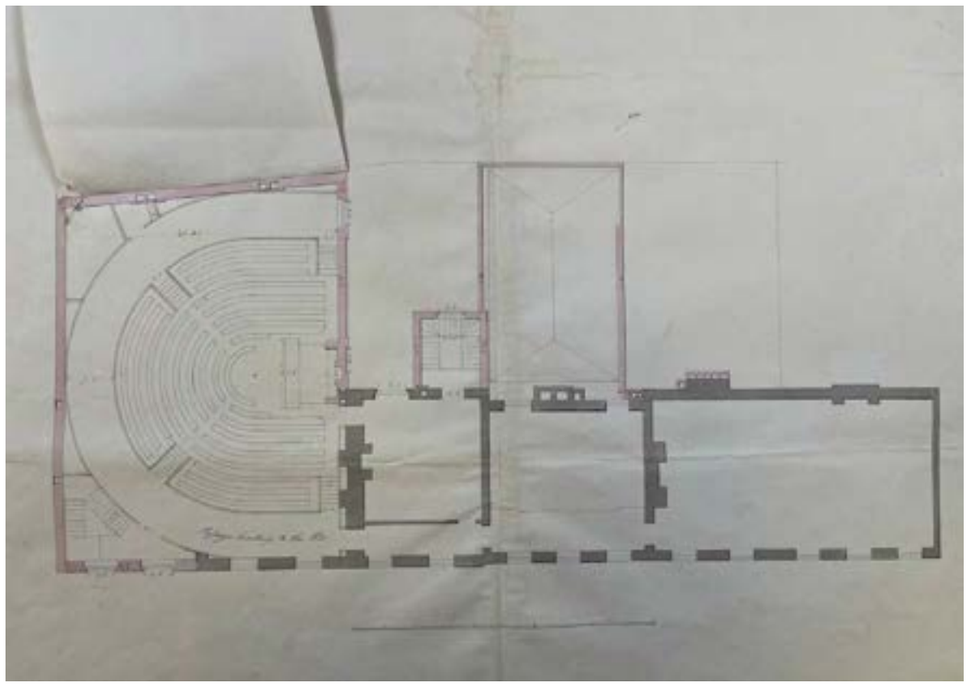

Fig 3.72 Parnham's record drawing of spring 1804 showing the form of No 21's first floor at the completion of the works. Ri Ref. Ri/1/G/G/1

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[104] Rumford was particularly interested in supplying cheap but nutritious meals to the poor on a large scale and saw the Royal Institution as a place to continue the experiments he had already made in Munich. For further details see chapter 15 'Cookery' in Sanborn C. Brown, *Benjamin Thompson, Count Rumford*, Cambridge, MA, 1979.

[105] As described in Rumford, 'Royal Institution of Great Britain', *Phil.Mag.*, 1802, **13**: 80-5, p.81.

[106] RIBA drawing SB/58/1/12.

[107] RI MS RI/1/G/G/1. The presentational quality of this set of floor plans is such that it is thought likely that they are those which Mr Parnham was commissioned to produce, as a record, at the completion of the scheme of works. Ri MM 27 February 1804

[108] RI MM, 31 March 1800, **2**: 37. At the 1801 Royal Academy exhibition, Spiller displayed designs for the laboratory and Theatre of the Royal Institution (Algernon Graves, *The Royal Academy of Arts: A Complete Dictionary of Contributors and their work from its foundation in 1769 to 1904*, 8 volumes, London, 1905–1906, **7**: 221), but quite what these were is not clear.

[109] RI MM, 12 May 1800, **2**: 79. There was evidently some tension between Saunders and Webster as the latter's somewhat self-serving manuscript autobiography, written in 1837, makes clear. RI MS RI CG/4/1, f.15.

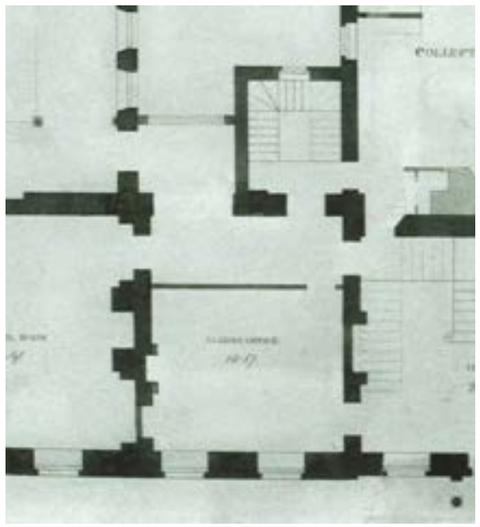
[110] RI MS RI/1/G/G/1.

mid 18th-century staircase, freeing up space. In the basement, the domestic service area was demolished and turned into a single room to house the workshop and printing press,[111] and toilets were installed in one of the cellars. The original plans appear to have been followed closely on the first and second floors, although the as-built drawings show that the two east-facing windows at the top of the Grand Staircase were not blocked up, as initially intended.[112]

In a report to the Managers on 25 May 1801, Rumford commented on the excellent progress that had been made.[113] The facilities had been completed just in time to be used by the new Director of the Laboratory, Humphry Davy, appointed in February 1801. It must have been shortly after this that James Gillray executed his famous caricature, *New Discoveries in Pneumaticks* (**see page 12**). This is the earliest depiction of the interior of the Ri. The door on the left is false (as shown on the contract drawing), while the door on the right is open and gives a glimpse of the Ante-Room beyond.

At this stage, the alterations to the fabric were largely directed by the requirements set out by Rumford. On 20 April 1801, he proposed the building of five bedrooms, needed for his proposed mechanics school, on the roof to the south of the Lecture Theatre. Built to the same height as the Lecture Theatre, thereby 'equalising' the roof line, this also provided the opportunity to unify the appearance of the front of the building.[114]

The contract for this work, again with Hancock, was signed on 20 June 1801,[115] and was completed by November that year. On 26 April 1802, Rumford reported on the progress made in the year since his last report.[116] Shortly afterwards, for reasons that remain obscure, he left for France (during the Peace of Amiens) and did not return.[117]



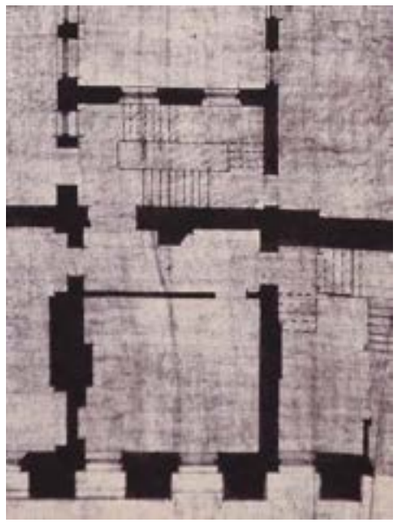


Fig 3.73 and 3.74 The plans ascribed to Webster and Parnham vary most in the manner in which they set out, or record, the form of the Clerk's Office and this room's arrangement with the Model Room to the north-east. The paucity of early 19th-century drawn record of the form of the building renders it a challenge to clarify whether in its original form, as per Parnham's drawing, the Clerk's Office was bounded by a cloakroom to the north and a glazed wall and corridor to the west – or whether, as per Webster's plan a north-south corridor ran immediately to the east of it

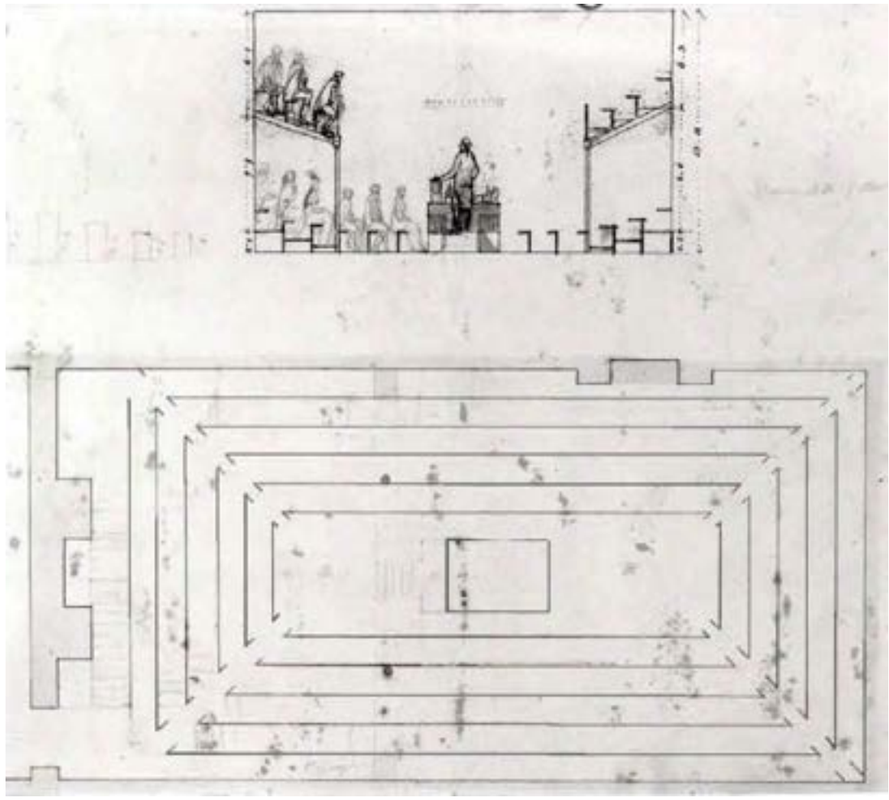


Fig 3.75 One of Webster's designs for the temporary Lecture Room. RIBA SD/55/4/6

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[111] Both were built but their precise location cannot be determined (Rumford, *op.cit.* (102), pp.19 and 21 respectively). The printing press, for which official approval was granted early in 1801 (LMA WR/L/P/1801/7 and 8), did not survive for long and the workshop, which formed a key part of Rumford's agenda, changed its function following Rumford's departure. The reason for the change in 1801 was probably connected with a rights of light issue raised by Augustus Henry Fitzroy, 3rd Duke of Grafton (1735–1811), who owned the adjacent property in Bond Street. See Saunders to Banks, 8 October 1800, RI MS RI/1/G/G/2 and RI MM, 2 February 1801, **2**: 125 and 2 March 1801, **2**: 143.

[112] RI MM, 4 August 1800, **2**: 112. Soane Museum, plan 57/7/44.

[113] Rumford, *op.cit.* (102).

[114] RI MM, 20 April 1801, **2**: 166. The inference that the various extensions were undertaken during the 18th century had not left the building with a uniform frontage is confirmed by Webster. Webster, autobiography, RI MS RI CG4/6/1, f.13.

[115] RI MM, 7 September 1801, **2**: 210.

[116] Rumford, *op.cit.* (108) – An account which contains a detailed description of the Lecture Theatre.

[117] Berman, *op.cit.* (2), pp.29-31.

Following Rumford's departure, the Ri began to fall under Davy's agenda. This was reflected in major changes to the fabric of the building. Following the construction of the main Lecture Theatre, it was initially used concurrently with the temporary first-floor Lecture Room. By the end of 1803, the works upon which Soane and Holland had advised – to turn the temporary Lecture Room into a library – were well advanced.[118] Works were also progressing on a room for a mineralogical collection (a special concern of Davy's) on the ground floor immediately behind the Grand Entrance, along with a laboratory and smaller Lecture Theatre in the basement where the workshop had previously been sited. The workshop was moved to the building's north-east corner where the laboratory had been initially located.

At the beginning of 1804, William Atkinson became Clerk of Works, replacing Webster, who had been suffering from ill health.[119] By now, the key alterations were complete. This design would serve the Ri for nearly 70 years. Such was the pride that the Managers felt in having successfully completed the house's transformation that they commissioned a set of five large plans showing the layout of the new spaces.[120]

The cupola

It is known that the Theatre included a cupola with clerestory lights, as evidenced in the Thomas Webster construction drawings held in the RIBA collections (Fig 3.76). This is corroborated by early aerial photographs, which show a U-shaped set of pitched roofs surrounding a central cupola.

Daylight could be admitted to the auditorium either through a large south-facing window or from the clerestory lights, where the incident angle would have focused illumination on the demonstration bench and not the seating. The principal ventilation was presumably from the cupola windows aided by stack ventilation. With the auditorium full, the upper levels would have been susceptible to overheating.

The ability to exclude light would have been important, particularly during lectures such as Thomas Young's on the subject of optics (specifically his slit screen experiment demonstrating light wave action). Young is believed to have had a role in designing a mechanism installed within the cupola to enable a reflector to be raised and lowered. The lantern glazing would have been hard to discern from the interior and instead the effect with the reflector raised was to achieve an oculus – a round aperture apparently open to the sky. However, there are no known records confirming this.

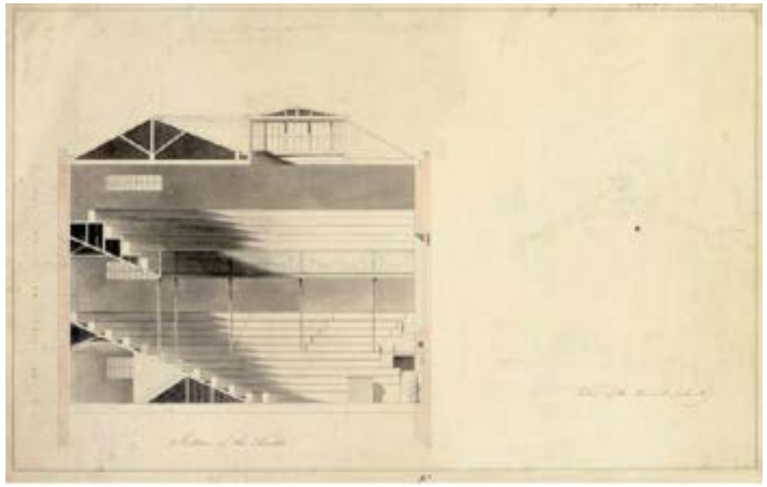

Fig 3.76 Section of the Theatre, showing the cupola design. RIBA 12173

Exploring the roles of those involved in the conversion

While the individuals involved in the 1799–1804 scheme are evidenced by the sizeable body of surviving drawings, correspondence and accounts, the extent to which each engaged in the project has remained unclear. The Managers' Minutes tell us that the Orkney-born Webster served as Clerk of Works between 1799 and 1804 – that is, for the duration of the building conversion project.[121] This record of Webster's clearly defined role, alongside the attribution of surviving drawings to him – of both the temporary Lecture Room[122] and the permanent Lecture Theatre – have supported the long-held idea that he was largely responsible for the conversion.

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118 See Webster's plan RIBA drawing SB/58/1/13. RI MM, 21 November 1803, **3**: 161 and 28 November 1803, **3**: 169-70.

119 RI MM, 27 February 1804, **3**: 225.

120 RI MM, 27 February 1804, **3**: 224-5. RIIC 1575-9. These were executed by a Mr Parnham who had been recommended by Soane and Holland.

121 RI MM 14 September 1799. 'Resolved that Mr Webster, the present Clerk of the Works be also employed as Clerk to the Ri'.

122 RI MM 27 January 1800 records that 'plans (had been) prepared by Mr Webster for a new lecture room'

Other key figures
At the point at which he became involved with the Ri, Webster was in his mid-twenties. Henry Holland and John Soane, on the other hand, were well established architects of national repute. On 23 March 1799, Soane was admitted as a Proprietor of the Ri and the following month both he and Holland had their gratuitous offers to serve as Surveyors to the Institution accepted.[123] The Managers' Minutes record Holland and Soane's involvement in the scheme of conversion. It was they who jointly surveyed the fabric of the late Mr Mellish's house and provided a valuation of the property prior to purchase.

With these two London-based architects close at hand and officially engaged with the Ri, it is not unreasonable to suppose that they, and Soane in particular, played a key role in steering the design proposals. The case for Soane's involvement is advanced by knowledge that his sometime associate James Spiller played an important role in the conversion of No 21.[124] Spiller is acknowledged as author of the April 1800 survey drawings. A 'life subscriber to the Institution', he served as the Ri's Surveyor from late March to 12 May 1800.[125]

At the time that No 21 was being converted, George Saunders served as an appointed Manager of the Ri. With a background in the scientific analysis of theatre design – a subject on which he had published an authoritative treatise in 1790 – Saunders was clearly well placed to guide the design of the Lecture Theatre. On 12 May 1800, the Managers accepted Saunders' gratuitous offer to serve as the Surveyor of the Institution.

Webster's letters and 'autobiography'
In the archives at the Ri, there survives a leather-bound volume entitled *Webster's Autobiography*. It comprises an anonymous introduction written in 1845, an extract from 'an encyclopaedia of domestic economy', a collection of Webster's letters and a few pages of handwritten autobiography, penned in 1837. The contents add considerably to our existing understanding of the 1799–1804 conversion.

In his autobiography Webster relays that he owed 'the foundation of his architectural knowledge' to James Playfair, the architect, 'friend and instructor', for whom he worked when he first moved

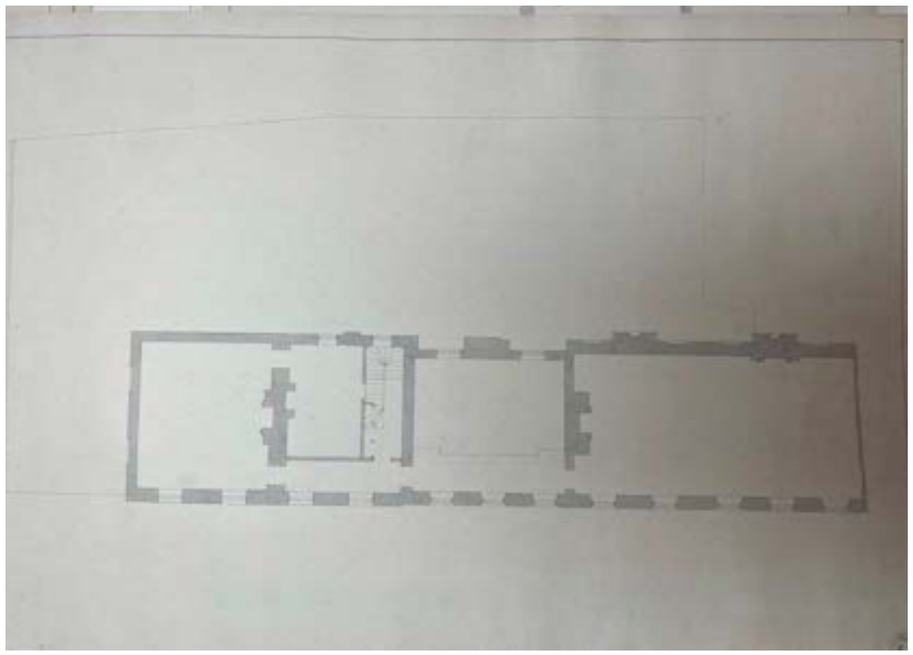


Fig 3.77 Spiller's April 1800 record drawing of No 21's first floor prior to the commencement of its conversion. Soane Ref. 57/7/46

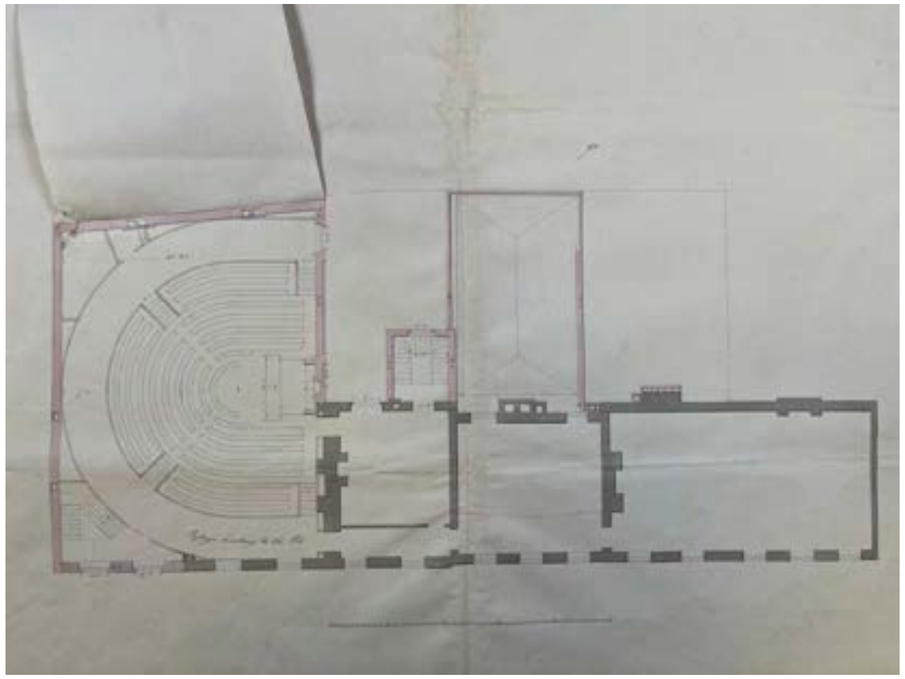


Fig 3.78 Parnham's record drawing of spring 1804 showing the form of No 21's first floor at the completion of the works. Ri Ref. Ri/1/G/G/1

[123] MM, 23 March 1799 & MM 13 April 1799. This is a role they are understood to have stepped down from at Spiller's appointment as Surveyor to the Institution at the end of March 1800.
[124] The survival of Spiller's drawings and the quantity of Ri related documentary material found in the Soane Museum archives might be read as evidence of the close working relationship which Spiller and Soane enjoyed while 21 Albemarle Street was being converted.
[125] Soane Museum Archives Private Correspondence IV 5.5.7

from Scotland to London. It was Rumford who lured Webster to the Ri, 'at first to follow up practically his own truly philosophical principles respecting the improvement of fireplaces, and all that related to heat in warming and ventilating buildings'.

The extract from the encyclopaedia recounts that Webster had been the Ri's 'first officer, in point of time', and that he had 'designed and superintended the building of the theatre for lectures and the chemical laboratory'.

The evidence set out in both the autobiography and the letters is sufficient to confirm that the Lecture Theatre was built to Webster's design. The leather-bound volume also offers insight into Spiller's involvement. Webster recalled: 'Soon after my designs were made they were taken away by some of the Managers (whose name I shall not mention at present) and put into the hands of Mr Spiller an architect, in order that he might make another set of designs thereby giving him the advantage of my ideas. This was accordingly done, Mr Spiller's designs resembled mine in the general distribution but his lecture room was on the 2nd story and mine was on the 1st – his was covered by a lofty dome highly enriched: my ceiling was flat – his estimate was £10,000, mine was £5,000 his would take two years to erect: Mine was to be finished in 6 months.'

In light of the fact that at least some of the Managers' heads had been turned by Spiller's proposal, Webster was required to prepare a new set of designs. At the Managers' next meeting, these were compared with those of his 'antagonist' Spiller and, according to Webster, his designs 'were unanimously preferred'. Written while the works to convert No 21 were under way, a Webster letter (to an unnamed recipient with whom he was looking to go into business) provides detail that adds to the narrative set out above:

> 'Having been required by the Managers of the Institution to make designs for constructing a large theatre ... I made plans for this purpose which they approved of – However one gentleman whose name I forbear mentioning thought proper to put my designs into the hands of a surveyor (whom he wished to introduce) that he might make his alterations and improvements and consequently set mine aside.'

Given the fact that in 1799 Soane and Holland had surveyed No 21 and that they had jointly been appointed as Surveyors to the Ri, and that Soane had a working relationship with Spiller, it seems quite likely that it was Soane who was the gentleman whose name Webster 'forbears mentioning'.

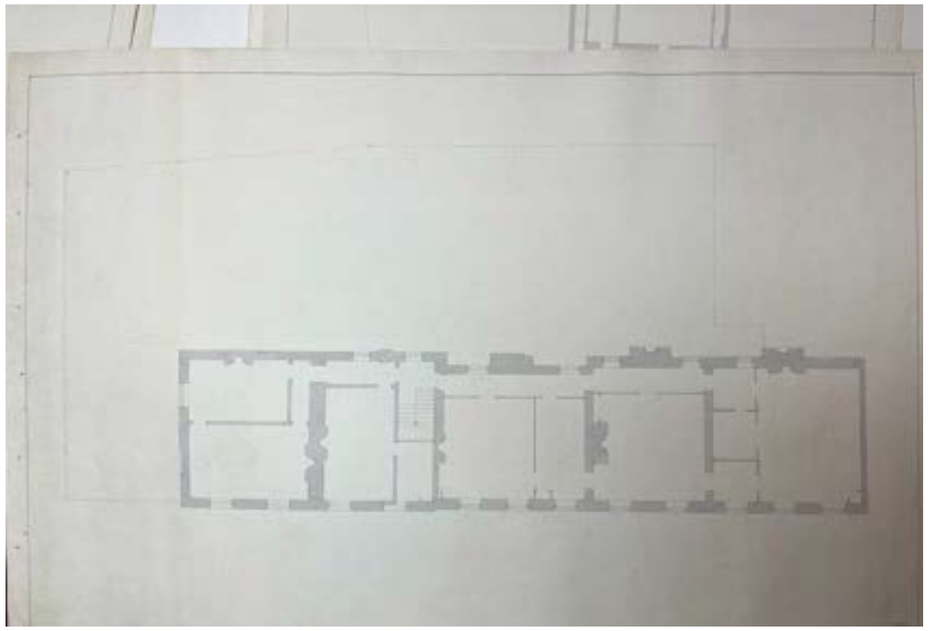


Fig 3.79 Spiller's April 1800 record drawing of No 21's second floor prior to the commencement of its conversion. Soane Ref. 57/7/47

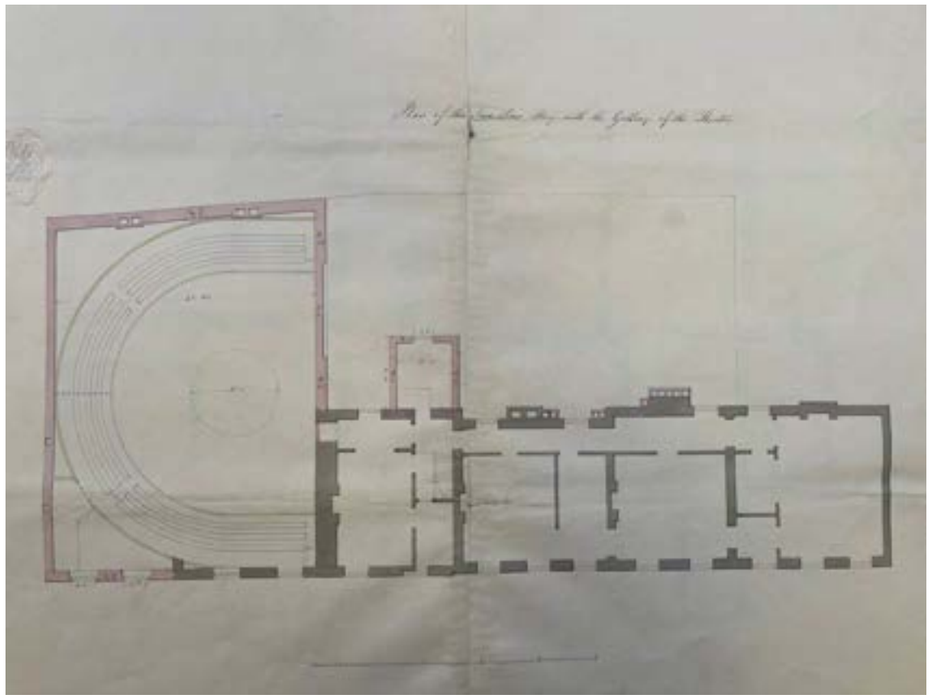
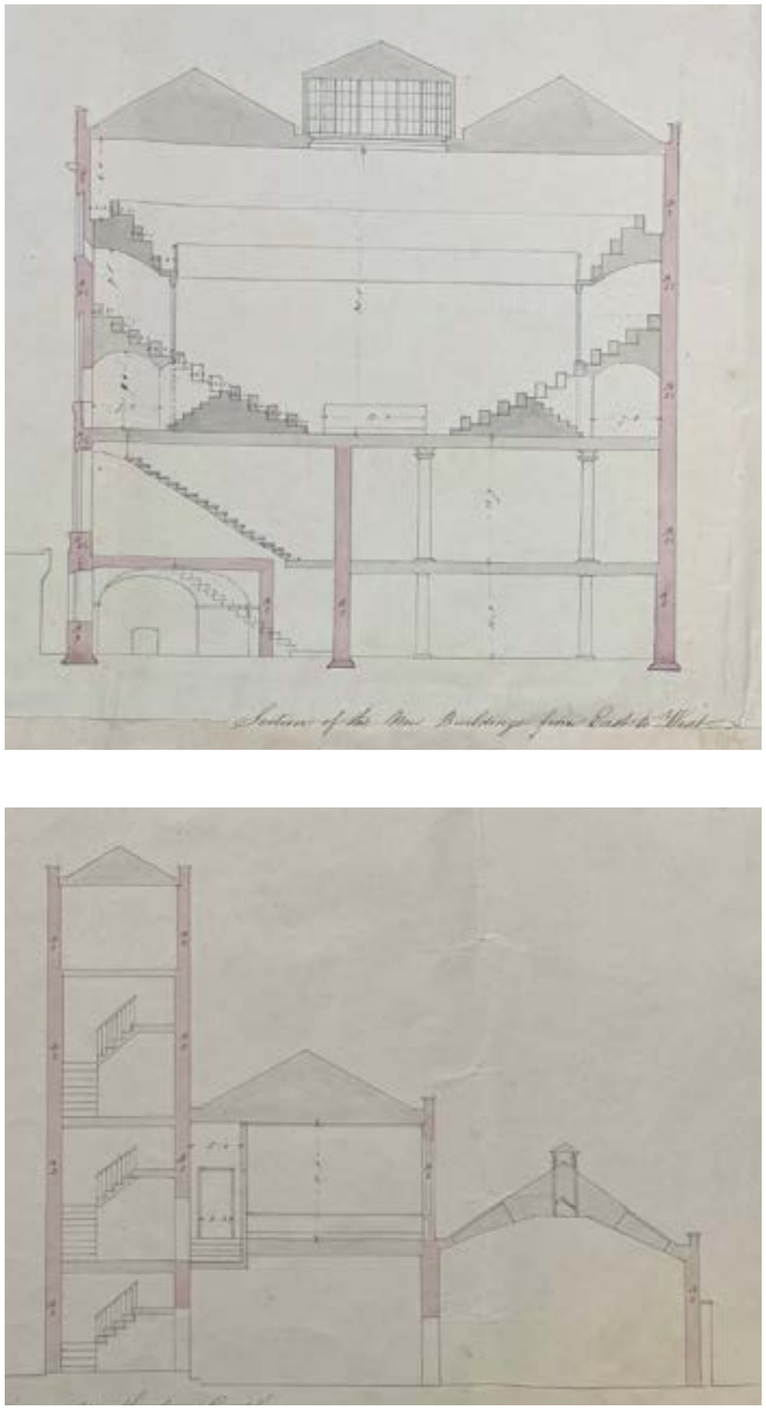
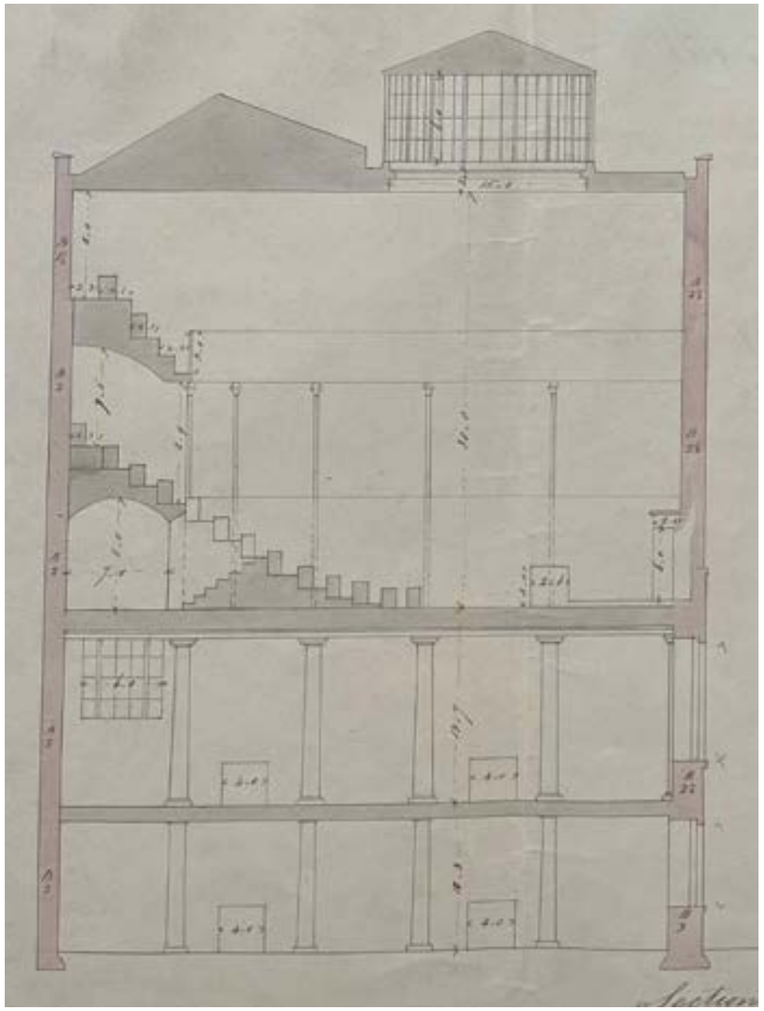


Fig 3.80 Parnham's record drawing of spring 1804 showing the form of No 21's second floor at the completion of the works. Ri Ref. Ri/1/G/G/1





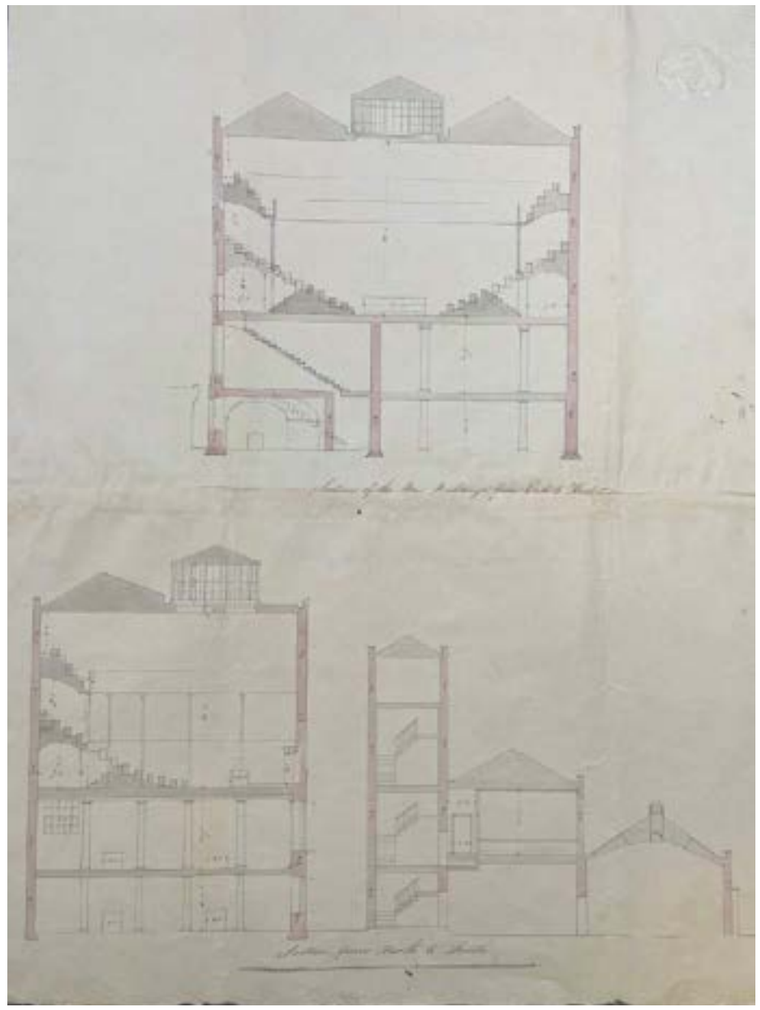


Fig 3.81 Parnham's record drawing of spring 1804 showing, in sectional form, the arrangement of No 21 at the completion of the works. Ri Ref. Ri/1/G/G/1

Webster was 'much exasperated at the illiberal treatment' he received[126] at the Ri. His ire was not directed at Spiller – 'of course I do not blame architects. They are natural rivals' – but his irritation was further piqued at the Managers' paying Spiller, as Webster understood it, '£150, a considerable sum, for his [unexecuted] designs', while he, as an officer of the Institution, received a salary of 'about £100 a year'.

In a letter written to a peer when the conversion was 'very far advanced', Webster explained the works undertaken to his design: 'The theatre I have designed on the plan of the antique it is semicircular having a passage under the seats of the pit with vomitaria, and will be the only instance of this kind in Britain. There is also a large room for a repository for models, a chemical laboratory, public kitchens etc.'

In the autobiography, penned some 33 years after the completion of the conversion, Webster wrote with pride about the Theatre, which 'is pronounced to be the most perfect room of the kind in the kingdom, for possessing the proportions of allowing the lecturer to be well heard and seen by the audience and for affording them easy entrance and exit etc.' He cites Faraday as describing the Lecture Room as 'almost perfect', reporting that: 'although architects are continually measuring and drawing it to copy from, and many other rooms have been built in imitation of it, in which he [Faraday] has threw his voice, yet none of them proved equal to that in question'.

The role played by Spiller

While it appears that Spiller's plans for the Lecture Theatre were ultimately rejected, letters surviving in the Sir John Soane Museum archive, labelled Private Correspondence (IV 5.5.7), provide evidence to support the architect's key role in the conversion. This correspondence, of March 1802, was spawned by a request by Spiller to the Managers, for payment of sums overdue for listed works undertaken.

A second archived letter, from Rumford to Holland, requests that Holland look over the itemised account of the work Spiller claims to have carried out. Holland is offered the services of 'Mr Webster Clerk of Works … who can give you the information you may require respecting the business in question'. Further archived correspondence reveal the outcome of Holland, Webster and the Managers' deliberations: the Managers resolve 'that Mr Spiller ought to be indemnified [ie compensated] for his expenses and trouble in the business of the Institution'. Such acceptance of Spiller's account gives credence to key claims set out in his letter of 1 March, namely that he had been responsible:

> 'For making drawings to show my proposed alterations in the plans, drawn by Mr Webster (for the lecture theatre), and for various attendances on Sir John Cox Hippisley and Count Rumford thereon
>
> 'For making a design for the laboratory repository & theatre, and for their connection with the old building on the several stories & for improvements therein, which design so far as related to the laboratory repository & theatre being approved by the Managers and agreed to be carried into execution'.

Spiller's account tallies with Webster's with regard to the Lecture Theatre, while providing clarity around the fact that he, Spiller, was responsible for the Basement Laboratory, Theatre and other improvements. It is telling that in his March 1802 account, Spiller refers to Webster as having been 'appointed by the Managers as my Clerk of Works'.

The contribution of Saunders

As Webster recounts in his autobiography, George Saunders offered his gratuitous services to the Ri's Managers after his (Webster's) designs were 'quite finished'. Webster relays that the offer made by Saunders was with regard to 'assistance … should there be any difficulties over the construction'. Webster notes that he alone set out the estimate and the contract, that 'every person employed was made by [his] immediate invitation', that it was he who was responsible for the working drawings, 'down to the detail of the mouldings' and that his 'designs were not in the smallest degree altered by him [Saunders]'.

An undated letter in Webster's hand, written when the works had advanced to 'as high as the lecture room floor', tells of a meeting of the Managers at which Saunders had 'laid before them' proposals for several works that had not been included in the original contract. These included changes to the proposed staircase; the removal of the WC to the roof of the laboratory; the taking down of the kitchen's chimney stack and breastwork; the fitting up of a closet in the Managers' room; and works to fit up the laboratory in 'a more complete and more expensive way'. These changes gained the approval of the Managers and Saunders duly prepared the necessary agreements with Hancock, the contractor, with regard to their execution.

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[126] Undated letter in Webster's hand, bound in to the leather-bound volume referred to as Webster's Autobiography, Ri Archival Collection

The need for reappraisal

Holland, Soane and Saunders were all appointed advisers of the Ri, without renumeration. Webster was a paid employee, 20 years younger than Soane, 28 younger than Holland and surely overshadowed by the reputations of both. Chief among the questions must therefore be these: to what extent was Webster working at the instruction of others, and how much of a guiding role did Holland, Soane and Saunders play?

Further careful and methodical reconsideration of the documentary evidence would doubtless serve to embolden the existing narrative. Any re-evaluation of the nature and extent of the involvement of Webster, Spiller, Holland, Soane and Saunders needs to consider:

- The numerous surviving drawings and their authorship. With each, whether it should be read as a design proposal or a record, and the extent to which the drawing reflects the role of its author – as designer, or merely as draughtsman
- The nature of the working relationships between Webster and Spiller and the ostensibly 'in house' Soane, Holland and Saunders. Take, for example, as set out in the Managers' Minutes of 27 January 1800, 'resolved that Sir GC Hippisley Bt be requested to consult with Messrs Holland and Soane on the subject of the plans prepared by Mr Webster for a new lecture room'. While it is appreciated that it was Webster who drew up the plans, the question is to what extent Holland and Soane provided guidance after, and before, Webster put pen to paper?
- The part any of the Managers might have played in steering the scheme. For example, can documentary evidence be found to link Thomas Young and his mechanical theories with the design of the Lecture Theatre's winching mechanism?

3.3.8 1804–1850: Developments during the first half of the 19th century

In the early years of use by the Ri, the first-floor Library was depicted by Rowlandson,[127] a version of which was published in Ackermann's *Microcosm of London*,[128] (Fig 3.82). Davy's successor, William Thomas Brande, used the laboratory as the ideal in his *Manual of Chemistry*.[129] This included a detailed plan of the

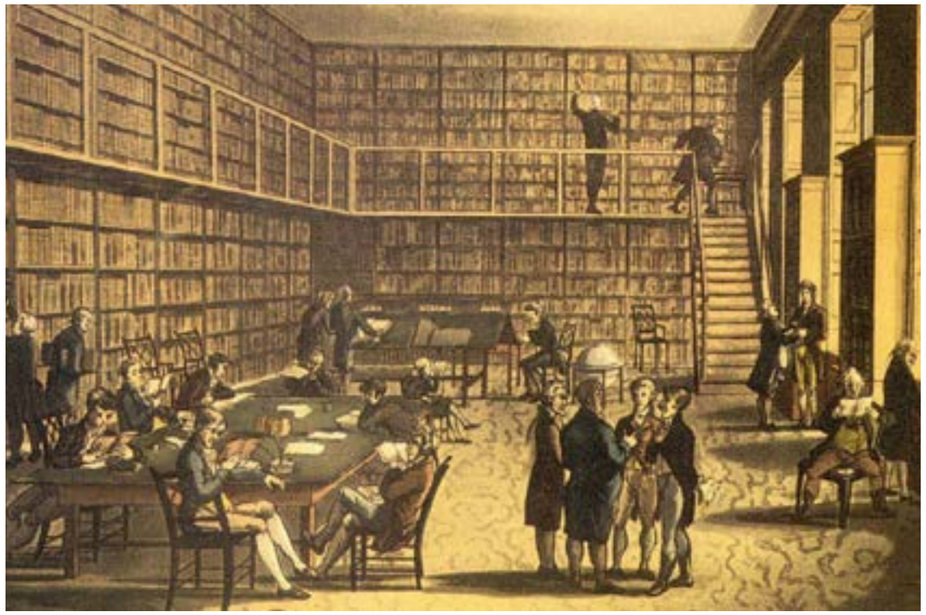

Fig 3.82 The Ri's Library as depicted in Ackermann's Microcosm of London, 1809

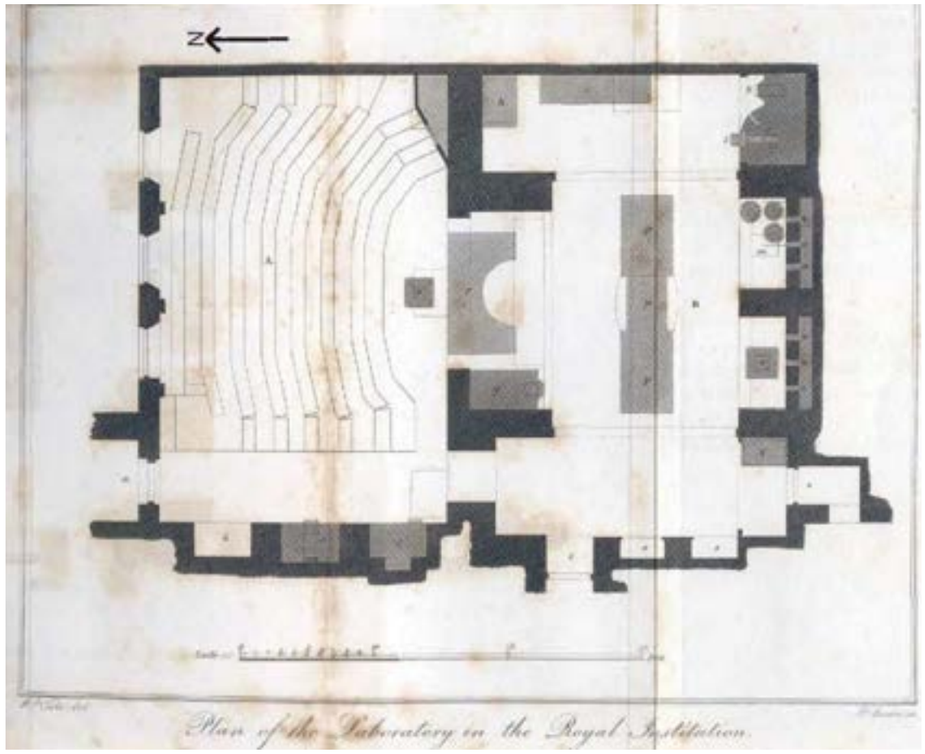

Fig 3.83 Plan of the Basement Laboratory. From WT Brande, Manual of Chemistry, London, 1819

[127] This was published in Basil S. Long, 'Rowlandson Drawings in the Desmond Coke Collection', *The Connoisseur*, 1927, **79**: 204–13, p.210. The original has not yet been located.

[128] R. Ackermann, *The Microcosm of London*, 3 volumes, London, 1808–1810, **3**: 27-37. This is one of the few interior views in Ackermann and suggests that despite the attempt to unify the frontage, it was not that interesting.

[129] William Thomas Brande, *Manual of Chemistry*, London, 1819.

Basement Laboratory (Fig 3.83) and Lecture Theatre, as well as an illustration of the interior of the laboratory (Fig 3.84). According to Brande's description, by 1819 the Servant's Hall in the southern part of the basement had been turned into 'an apartment for apparatus'.[130] This space was used by Faraday, with his froggery[131] in the adjoining southern cellar. By the 1850s, it had become the Magnetic Laboratory.

Since no reference to this conversion has been found,[132] it is likely that the adjacent space was gradually taken over by the laboratory – a not entirely unknown phenomenon to this day! It was these laboratories that were portrayed by Harriet Moore in the 1850s[133] (Fig 3.85 and Fig 3.86, with Fig 3.87 for modern comparison).

Before 1827, the building was subject only to minor alterations and maintenance.[134] The main Lecture Theatre's ventilation and access were frequently addressed but were to remain serious problems throughout the century. The year 1827 saw the first major building for more than 20 years when a glass furnace house was constructed in the north-east corner of the rear yard.[135] This was needed for a project by a joint committee of the Royal Society and the Board of Longitude to improve optical glass. Faraday was a member of the experimental sub-committee responsible for making the glass. After unsuccessfully working at a commercial manufacturer, it was agreed that Faraday would make the glass himself in a purpose-built facility at the Ri. This involved him in a great deal of labour in the late 1820s, ultimately with no success.[136] Quite what happened to the furnace is not clear, although the existence of the glass house was referred to in minutes as late as 1846 and in Faraday's laboratory notebook in 1857.[137]

Fig 3.84 Interior of the Basement Laboratory. From WT Brande, Manual of Chemistry, London, 1819

Fig 3.85 Faraday's Magnetic Laboratory. Harriet Moore, c.1852 watercolour, RIIC 0445

130 Brande, *op.cit.* (129), p.xv.

131 Until sensitive galvanometers were constructed, the only way of detecting small quantities of electricity was by passing the current through a frog. The location of Faraday's froggery is now marked on the floor with an inlaid painting of a frog executed in 1936.

132 Donovan Chilton and Noel G. Coley, 'The Laboratories of the Royal Institution in the Nineteenth Century, *Ambix*, 1980, **27**: 173-97, p.177.

133 Frank A.J.L. James, 'Harriet Jane Moore, Michael Faraday, and Moore's midnineteenth century watercolours of the interior of the Royal Institution', in James Hamilton (ed.), *Fields of Influence: Conjunctions of Artists and Scientists, 1815–1860*, Birmingham, 2001, pp.111–128.

134 Following the completion of the early alterations and additions, the Royal Institution appointed a Superintendent of the House with executive responsibility for overseeing all the tasks needed to ensure the smooth working of the building. The holder of this position was usually, but not necessarily, the senior professor of the Royal Institution. In 1965 this post was subsumed *de facto* into the newly created post of Director of the Royal Institution. For a list of Superintendents, see James, *op.cit.* (2), p.339.

135 For its location and size see Faraday, *Diary*, 17 August 1857, **7**: 15610.

136 This rather sorry tale is told in Frank A.J.L. James, 'Michael Faraday's Work on Optical Glass', *Phys.Ed.*, 1991, **26**: 296-300.

137 RI MM, 6 April 1846, **9**: 380-2. Faraday, *Diary*, 17 August 1857, **7**: 15610.

1837: New facade

Faraday was deeply concerned about the 'architecture of science'. In 1835, he was elected an Honorary Member of the newly formed Institute of British Architects.[138] It was in this period that the building was most clearly used as a metaphor for his particular way of doing science.[139] The most obvious change during his time as Superintendent of the House was the addition of the Corinthian-columned facade in the late 1830s.

The earliest reference to this project is in a notebook, where Faraday records that at a Friday Evening Discourse on 12 June 1835 the architect Lewis Vulliamy, a Member of the Ri, displayed a design to improve the frontage.[140] The following year, Vulliamy began to provide architectural advice to the Ri.[141] The hint was taken and the *Annual Report of the Visitors* for 1835 (2 April 1836) noted that 'no one can for a moment deny, who, in his daily visits to the Institution, has been grieved at the ignoble exterior of so extensive a building'.

By May 1836, an account had been opened at Drummond's Bank for subscriptions for the improvements.[142] Shortly before this, four proposals for the new frontage had been exhibited at a Friday Evening Discourse.[143] The architects were Vulliamy, Alfred Ainger (an old friend of Faraday's), James Hakewill and a Mr Bird, a builder who had done some work for the Ri.[144] Three other architects – James Barr, Alfred Beaumont and R Hesketh – also submitted designs.[145] A modified design by Vulliamy was chosen. The cost of the work would be paid for by the fundraising efforts, which by May 1837 had secured £1,173 16s.[146]

Vulliamy's original proposal incorporated the embellishment of the facade with pilasters. This plan was objected to by the District Surveyor, who challenged the legality of adding anything to the front. The objections were short-lived: a court threw out the challenge in late June.[147] Early in July 1837, it was proposed by Faraday and others that 12 three-quarter-engaged Corinthian

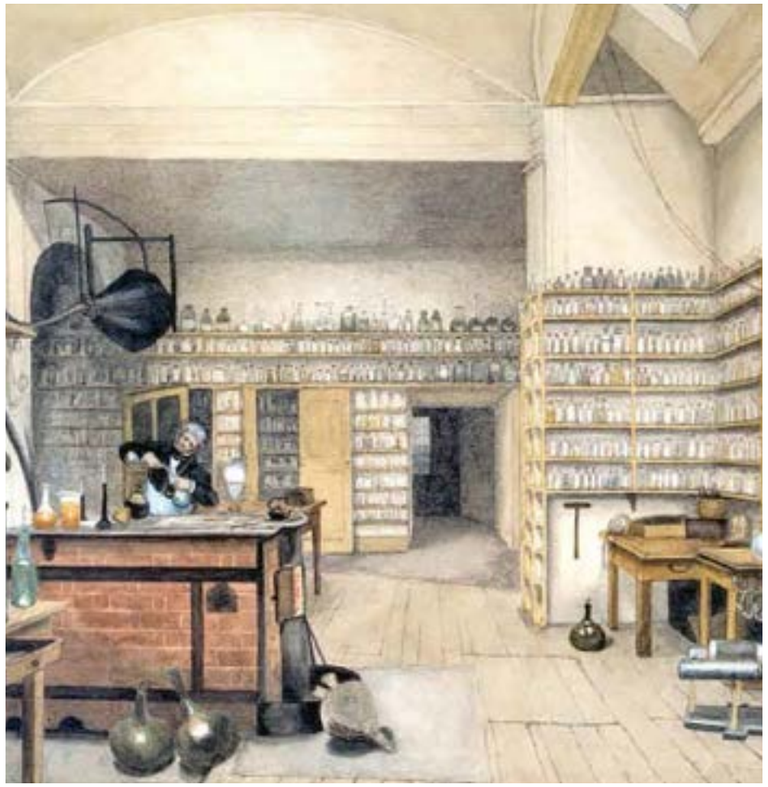

Fig 3.86 Faraday in his Laboratory. Harriet Moore, c.1852 watercolour, RIIC 0434

Fig 3.87 Faraday's reconstructed Magnetic Laboratory. 2002 photograph

138 Donaldson to Faraday, May 1835, Faraday, *Correspondence*, **2**: 785.
139 Sophie Forgan, 'Faraday – From Servant to Savant: The Institutional Context' in Gooding and James, *op.cit.* (26), pp.51-67, p.61; Geoffrey Cantor, 'How Michael Faraday brought law and order to the West End of London', *Physis*, 1992, **29**: 187-203, pp.197-9.
140 RI MS F4 F, f.108.
141 RI MM, 23 May 1836, **8**: 428-9.
142 RI MM, 23 May 1836, **8**: 429.
143 RI MS F4 F, f.155.
144 RI MM, 1 February 1836, **8**: 393.
145 RI MM, 20 June 1836, **8**: 439.
146 The subscribers and their donations are listed in a printed report tipped in RI MM, 22 May 1837, **8**: 487a.
147 RI MM, 25 May 1837, **8**: 490–1 and 26 June 1837, **8**: 503.

columns should take the place of the pilasters. They agreed to pay for the difference in cost.[148]

Vulliamy's final design was based on the *Tempio di Antonino* in Rome (Fig 3.88). The extent of Faraday's influence in this stylistic exemplar is intriguing, not least since he had described the *Tempio di Antonino* in his diary when he was in Rome in April 1814.[149] As Superintendent of the House, Faraday was responsible for the fabric, and at the end of July was involved in signing the contract with David Thomas for building the new facade.[150] It is well within the bounds of possibility that he guided Vulliamy towards his final design, which went on public display at the Ri as well as at the Royal Academy in 1837 and again in 1838.[151] [152]

Construction was well under way when it was decided, again with support from Faraday, that a further two columns should be added at the north end of the building.[153] This required the realignment of window openings – presumably the reason for their original omission. The works to other columns involved only the replacement of window frames, which were in any case rotten. The opportunity was also taken to make minor interior alterations.[154]

By the end of 1837, the Ri had acquired a facade that distinguished it, and by implication the activities within it, from all others in Albemarle Street. However, not everyone was happy. A pseudonymous author in *The Civil Engineer and Architect's Journal* commented shortly after the facade had been completed: 'It is precisely the sort of thing calculated to pass with the million for grand and classical; though it can hardly help offending the judicious, and disappointing those who are unreasonable enough for something betokening originality and gusto.'[155]

Despite such purist strictures, images of the Ri's grand frontage quickly began to appear in guides to London.[156] The well-known topographical artist Thomas Hosmer Shepherd executed two watercolours (Fig 3.89),[157] which have been widely reproduced over the following two centuries. Bearing in mind that no image of the

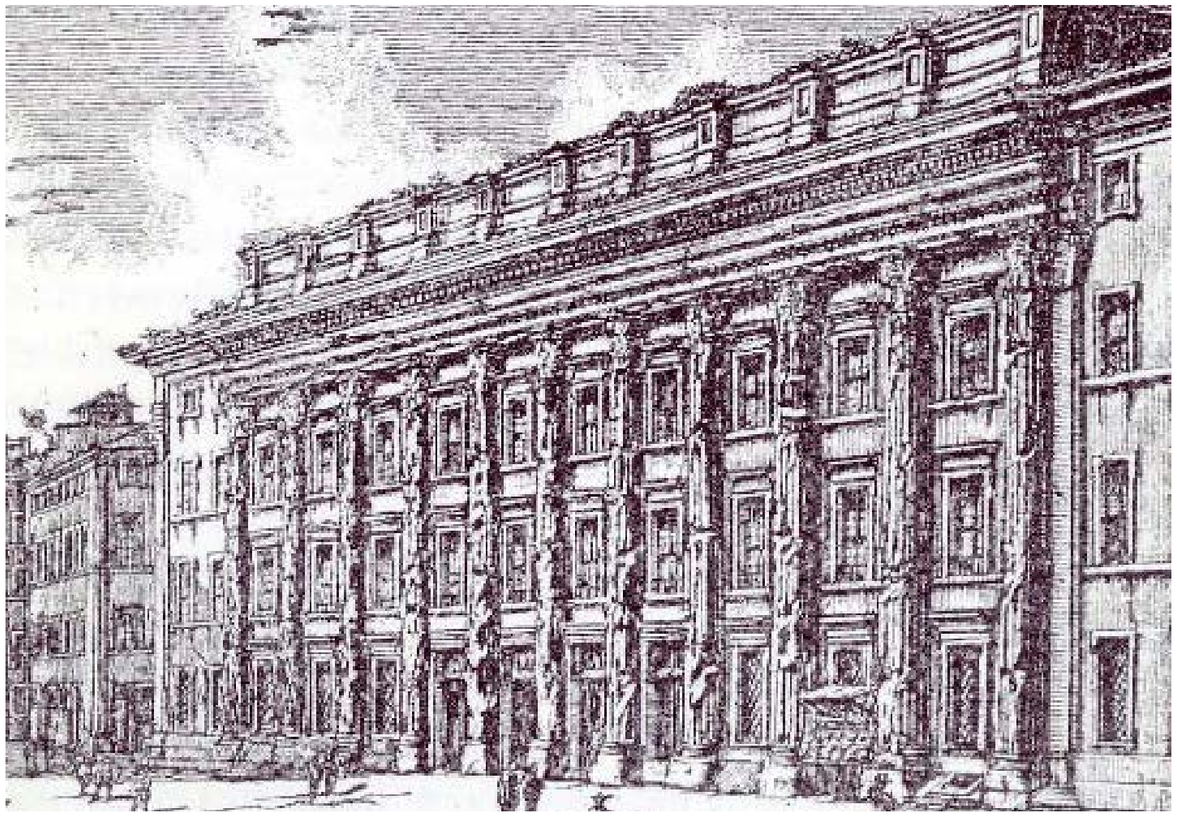

Fig 3.88 Veduta del Tempio di Antonino oggo Dogana di Terra, [Roma]. Possibly Laura Piranesi, c.1780 etching, Ri Archival Collection

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148 RI MM, 3 July 1837, **8**: 511.
149 Bowers and Symons, *op.cit.* (14), p.89, entry for 19 April 1814.
150 RI MM, 31 July 1837, **8**: 523-4. Faraday to Magrath, 1 August 1837, Faraday, *Correspondence*, **2**: 1020.
151 Graves, *op.cit.* (108), **8**: 94.
152 On 17 March and 7 April 1837, RI MS F4 E, pp.9 and 10.
153 RI MM, 16 October 1837, **8**: 539-41.
154 For a detailed account, see Caroe, *op.cit.* (39), pp.25-6.
155 Ralph Redivivus, 'The Royal Institution', *Civ.Eng.Architect J.*, 1837-8, **1**: 311-2, p.311.
156 Charles Knight, *London*, 6 volumes, London, 1841, **6**: 373.
157 RIIC 0277. The other is in the Prints and Drawings Department of the British Museum. L. Binyon, *Catalogue of Drawings by British Artists and artists of foreign origin working in Great*

front of the building from before 1837 has been found, it is fair to say that the facade amply achieved Faraday's aims.

3.3.9 1850–1894: Developments during the second half of the 19th century

The resignation of Brande in 1852 and the appointment of John Tyndall the following year signalled a major shift in the work of the Ri. This was reflected in changes to the fabric of the building. Unlike Brande, Tyndall wanted to carry out original research, which required expanded laboratory facilities. At some point between 1852 and 1857 (when Faraday sketched a plan of the entire eastern half of the basement, Fig 3.90),[158] the seats of the small Lecture Theatre were removed to make extra laboratory space.

Research activities received a considerable boost when Henry Bence Jones was elected Secretary in 1860. Bence Jones regarded research as the main function of the Ri. In an 1862 report he wrote: 'The Institution has gained so high a reputation for discovery, while the task of diffusing instruction has extended so widely into other hands … does not this point out our future course?'[159] This view, which was accepted by the Managers,[160] led to more resources being devoted to research. The following year, Bence Jones circulated a letter to Members asking for support for a new laboratory, pointing out that the new facility in Zurich had cost £10,000 while the projected cost for Bonn was twice that.[161]

An immediate effect of this increased attention to research was the appointment, in 1863, of Edward Frankland as Professor of Chemistry. To enable him to undertake his research, changes were made in the layout of the chemical laboratory.[162] In 1866, the long blocked-up staircase between the two basement laboratories was removed to provide space for Tyndall's smoke chamber.[163]

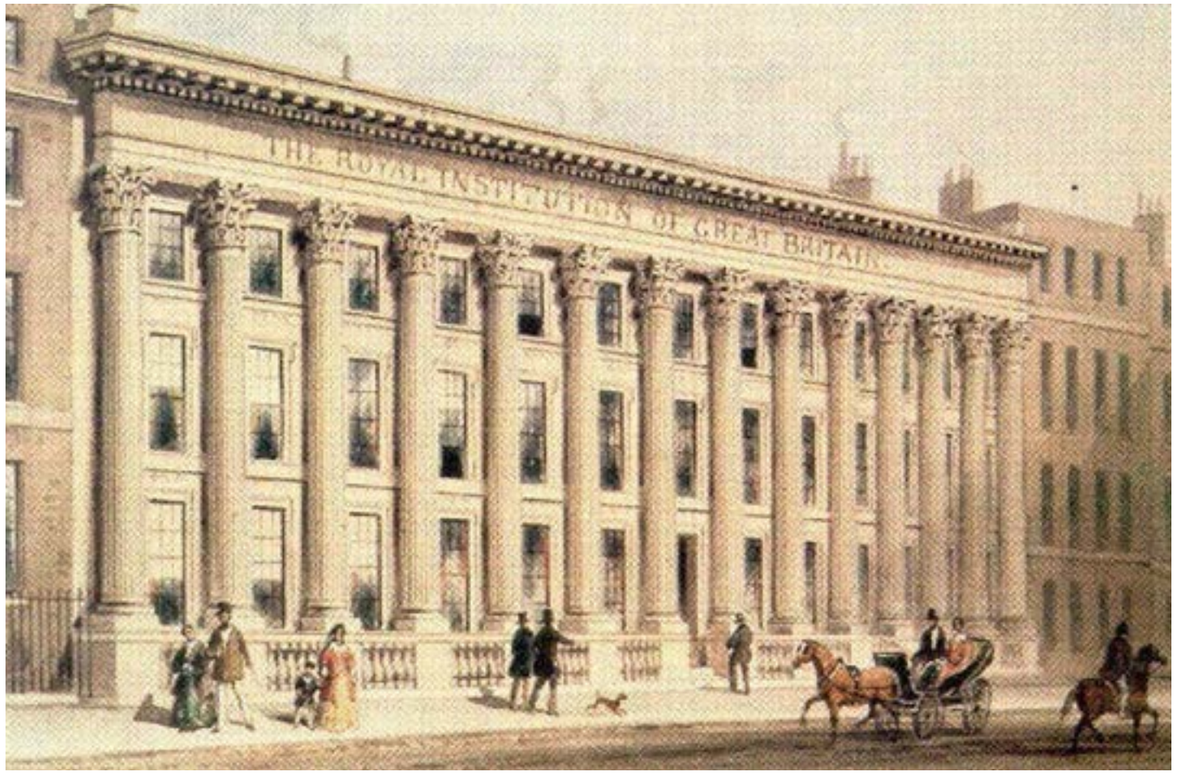


Fig 3.89 Ri facade. Thomas Hosmer Shepherd, c.1838 watercolour, RIIC 0277

Britain, preserved in the Department of Prints and Drawings in the British Museum, 4 volumes, London, 1898–1907, **4**: 63.

158 Faraday, *Diary*, 17 August 1857, **7**: 15610.

159 165 [Henry Bence Jones], *Report on the Past, Present, and Future of the Royal Institution, chiefly in regard to its Encouragement of Scientific Research*, London, 1862, p.9. There is something slightly peculiar about this argument. The Ri's near neighbours, the Royal College of Chemistry and the Royal School of Mines were at this time preparing to move to South Kensington, where they would later form the core of Imperial College (A.R. Hall, *Science for Industry: A Short History of the Imperial College of Science and Technology*, London, 1982, pp.12–14). The fact that the Ri did not also consider moving elsewhere suggests that the lecture programme was still seen as a vital component of the Ri's work, as it would have been difficult to sustain outside central London.

160 RI MM, 3 March 1862, **9**: 415.

161 [Henry Bence Jones], *A Letter to the Members of the Royal Institution, on the future encouragement of Scientific Research*, London, 1863, p.8.

162 RI MM, 3 November 1862, **9**: 447-8.

163 William Spottiswoode, 'On the Old and New Laboratories at the Royal Institution', *Proc.Roy. Inst.*, 1873, **7**: 1–11, p.2.

Such alterations clearly amounted to little more than tinkering, for according to Bence Jones in 1873 the chemical laboratory 'was probably the very worst in London'.[164] The Ri's implied rivalry with new Continental laboratories in the early 1860s soon extended to Britain. By the early 1870s, the construction of laboratories in Oxford, Cambridge, Manchester and Glasgow, as well as London, made it clear that something would have to be done to maintain the excellence of scientific research at the Ri.[165]

To effect this, the Managers used a substantial legacy of £2,000, received in 1870 from Alfred Davis.[166] In 1872, a two-storey laboratory was constructed on the east side of the building, on the site of the old basement chemical laboratory and the room housing the mineralogical collection[167] on the ground floor. Designed by Hamilton Edward Harwood, the new laboratory was built by George Smith. Tyndall, wisely perhaps, went on an extended lecture tour of the United States while the work was in progress. Bence Jones, in a series of letters informing Tyndall of progress, provides a graphic account of the trials and tribulations of construction. These range from the delays in starting caused by a lockout of building workers[168] to his pleasure as the work neared completion: 'I crawled over them [the laboratories] yesterday. They look so splendid in size. Such places. I felt overwhelmed.'[169]

The chemistry laboratories were in the basement, with physics on the ground floor. Faraday's Magnetic Laboratory was turned into a store room,[170] which presumably accounts for its survival. The opportunity was taken to build a new staircase to the north of the Ante-Room.[171] By opening up the false door in the Lecture Theatre, the stair radically improved means of escape. As Bence Jones commented: 'The exit from the theatre down the new stair case is splendid & there ought never again to be a panic of fire. Certainly three & even four persons abreast might go down the staircase. It is far too magnificent. However there it is.'[172]

In the Bence Jones era, key works were also undertaken to improve the comfort of the Lecture Theatre. A letter to Bence Jones from George Berkley, dated 20 May 1869, sets out the extent of these

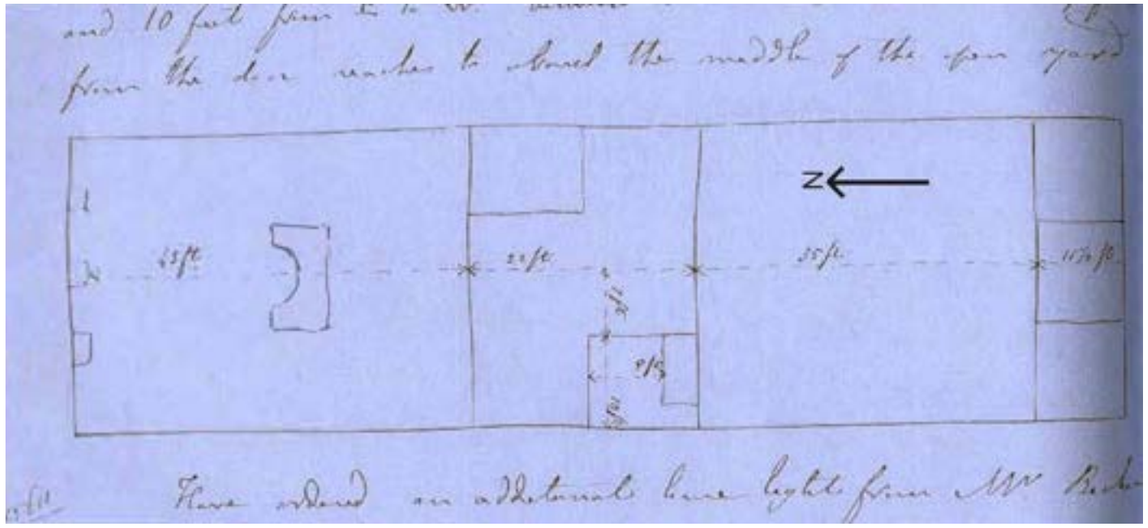


Fig 3.90 Faraday's sketch of the eastern side of the basement, 17 August 1857. RI MS F/2/1, paragraph 15610

Fig 3.91 Interior of old Eastern Laboratory before demolition. Charles W Dempsey, pencil drawing, summer 1872, RIIC 0452

164 Quoted in Spottiswoode, *op.cit.* (163), p.2, a view which Spottiswoode endorsed, p.8.
165 *Ibid.*, p.8 made this point explicitly.
166 *Ibid.*, p.9.
167 Originally formed by Davy, the mineralogical collection was disposed of. Ri 7/1/1 – Ri 1/G/G/4 A notice to contractors of March 1872 for 'taking down and rebuilding laboratories etc' refers also to 'pulling down the existing back staircase'.
168 Bence Jones to Tyndall, 2 and 16 July 1872, RI MS JT/1/J/67 and 68.
169 Bence Jones to Tyndall, 3 December 1872, RI MS JT/1/J/72.
170 As is clear from the 1884 drainage plan in RI MS.
171 For further details, see *Ante-room Gazetteer* (in the appendix).
172 Bence Jones to Tyndall, 10 December 1872, RI MS JT/1/J/73.

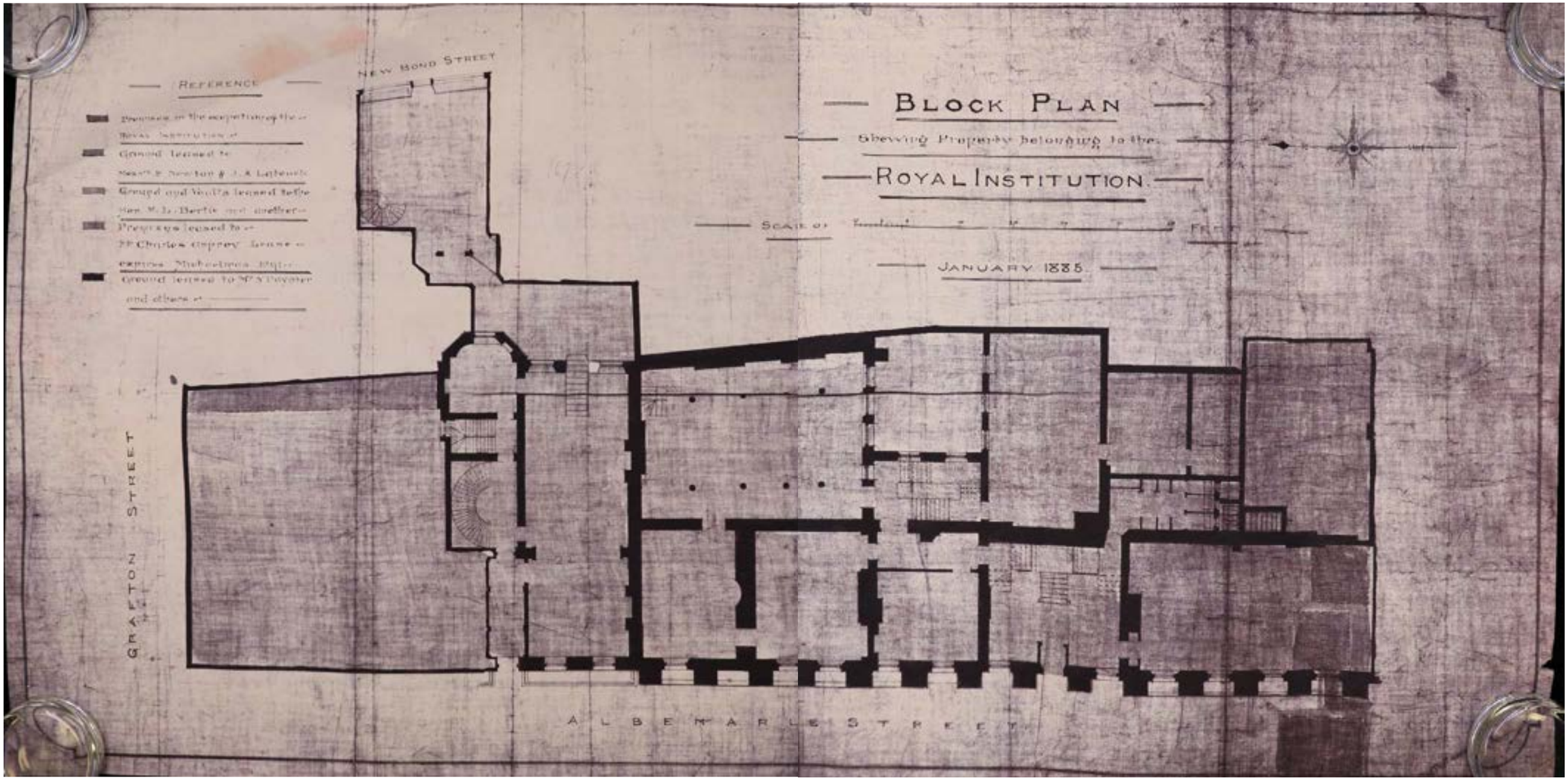


Fig 3.92 This 'one-off' plan provides invaluable record of the form of the Ri's ground floor in January 1885. Ri Archival Collection

modifications.[173] Working alongside 'an able architect', Berkley's brief was to address the 'offensive inconvenience' of the cramped seating arrangements, while minimising any reduction in numbers. In appreciation of the fact that, at the time, three-quarters of lectures had fewer than 300 attendees, Berkley resolved to improve the comfort of the seats nearest to the lecturer. His strategy was fourfold: to reduce the number of rows – between the front row and the columns – from seven to six; to fix backs to those seats that had none; to increase the breadth of the six rows of seats from 10 ½ to 13 inches; and to alter 'the height of the seats and of the backs in such a way as will make all the seats in the theatre as comfortable as the circumstances thereof will admit'. Evidence of the changes can be observed by comparing the layout recorded by Mr Parnham's first-floor plan of 1804 (Fig 3.78) with William Stokes's first-floor plan of 1884 (Fig 3.96). The improvement in comfort reduced the Lecture Theatre's capacity by about 20 seats.

Within a year of completing the improvements to the ground-floor seating, the Managers sanctioned the spending of 'a sum not exceeding £250 in making alterations in the gallery of the theatre'.[174] In November 1870, a Mr J Parkinson was paid £272.13.3 for 'alterations in lecture theatre', and the following month the Managers resolved to extend their 'best thanks to Mr Berkley for his services in connexion with the alterations in the theatre' and 'special thanks … to Mr Owen Jones for his valuable aid in the adornment of the theatre'.[175] Given his background in wallpaper design and his enthusiasm for ornamental Japanese patterns, it might be fair to conclude that it was Jones who was responsible for designing the Japanese wallpaper that adorns the panels of the Lecture Theatre (Fig 3.93).

With the completion of the laboratory block, the new stairs and the improvements to the Lecture Theatre, no further major building work was undertaken for nearly a quarter of a century. However, some very important smaller additions and alterations were carried out. In 1882, Joseph Swan, the pioneer of electric lighting, delivered a Friday Evening Discourse on that subject.[176] He then paid for electric lighting to be installed in the Lecture Theatre, markedly improving the atmosphere.[177] In the ensuing decade, the Ri was gradually electrified. In 1884, the Grand Staircase was

Fig 3.93 Sample of Japanese wallpaper used in the Theatre

[173] Letter transcribed into the Managers' Minutes of 7 June 1869.
[174] MM 9 May 1870.
[175] MM 7 November 1870 & 5 December 1870.
[176] J.W. Swan, 'Electric Lighting by Incandescence', *Proc.Roy.Inst.*, 1882, **10**: 33-43.
[177] *Annual Report of the Visitors* for 1882, pp.11–12.

strengthened[178] and the drains overhauled,[179] while six years later the first telephones were installed.[180]

The appointment of James Dewar as Fullerian Professor of Chemistry in 1877 and Superintendent of the House 10 years later led to mounting pressure on the available laboratory space. Dewar's research on cryogenics and his efforts to reach ever lower temperatures to fulfil his goal of liquefying hydrogen required large-scale apparatus, particularly pumps. Pressure on space was further increased in 1887 when John William Strutt, 3rd Lord Rayleigh, was appointed Professor of Natural Philosophy. Although he mostly used his private laboratory at Terling Place, Rayleigh did, on occasion, use the resources of the Ri, especially for his work on argon.

3.3.10 1894–1896: Foundation of the Davy-Faraday Research Laboratory

These problems were resolved in 1896 when the industrial chemist Ludwig Mond, who had purchased 20 Albemarle Street two years earlier, transferred the freehold to the Ri, at the same time providing an endowment to establish the Davy-Faraday Research Laboratory. The result was that Nos 20 and 21 were remerged after nearly a century and a half apart.

In the intervening period, No 20 had for a time continued as a private residence. In 1834, it had become part of a hotel that stretched eastwards to Bond Street. It was probably early in this period that the second flight of the staircase was added, running incongruously directly in front of the fenestration. These works also incorporated the construction of the decorative plaster ceiling, which displays a late flourish of classicism. It was probably during its time as a hotel that the north wall of No 20 was re-rendered. It is possible that the pilasters and cornice were introduced at this time (perhaps to complement the grandeur of No 21's new facade), but equally they may have been replacements for decayed existing examples.

In 1867, No 20 was purchased by Henry Wellesley, Earl Cowley, who returned it to use as a private residence. Following the deaths of Lord and Lady Cowley in 1884 and 1885 respectively, the house was used by the New Oxford and Cambridge Club.[181] It was after

Fig 3.94 Ante-Room looking north-east towards entrance to 1872 staircase. Katharine M Reynolds, 6 February 1891, photograph, RIIC 0681

Fig 3.95 Library looking south. Katharine M Reynolds, early 1890s photograph, RIIC 0779

[178] *Annual Report of the Visitors* for 1884, p.11.
[179] *Ibid*., p.11.
[180] *Annual Report of the Visitors* for 1890, p.17.
[181] Tyrrell, *op.cit.* (39, 3), p.56. Cowley's estate had offered it to the Ri, but they had declined. RI MM, 1 December 1884, **13**: 393.

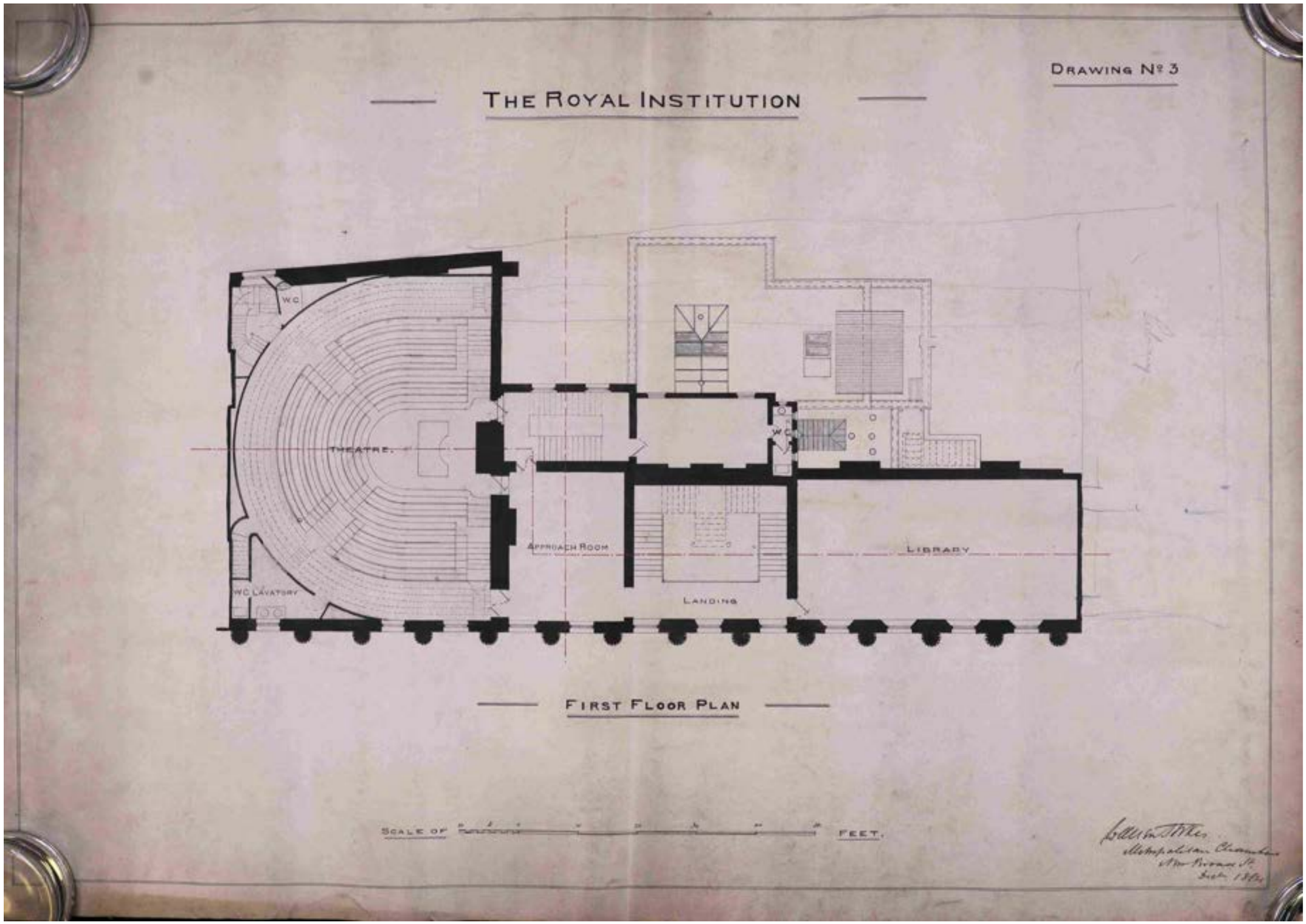


Fig 3.96 William Stokes' first-floor plan of 1884. Appreciation of the nature and extent of the works undertaken to the Lecture Theatre seating in the late 1860s can be gained through careful observation of the differences between the layout recorded in this drawing and comparison with that set out in Parnham's floor plan of 1804. Ri Archival Collection

the club's departure in 1893 that it was bought by Mond. Apart from an account associated with the 1867 sale that describes the number of rooms on each floor from the basement to the third floor, little documentary evidence has been found relating to the internal arrangements, including decoration, in the period before Mond's purchase.[182]

The reintegration of Nos 20 and 21 had several effects on the way both the buildings and the Ri operated. The work to reunite the two properties and fit out No 20 for the Davy-Faraday Research Laboratory was overseen by William Flockhart, who had been architect to the Ri since 1888. At first floor level, two door openings were created, allowing two extra rooms for library use as well as a room for the Secretary.[183] It appears that the introduction of the doors at the south end of the Library provided the *raison d'être* for the removal of the gallery, which is no longer evident in late 19th-century photographs (Fig 3.97). Further knocking through allowed three rooms on the second floor of No 20 to be added to Dewar's existing apartment in No 21.

It was in the laboratory areas that the merger had the greatest impact. The complicated boundary, which had subsisted between the properties at basement level since the mid-18th century, no longer existed. Dewar took advantage of this to build a new chemical laboratory to the south of the 1872 laboratory, which was then given over entirely to pumps (Fig 3.99). It was in these laboratories on 10 May 1898 that Dewar liquefied hydrogen for the first time.

The second major impact was the founding of the Davy-Faraday Research Laboratory, at this time an entirely separate entity from the Professors' Laboratories. By the end of the 19th century, it had become increasingly clear that it was impractical for scientific research to be undertaken by individuals working more or less alone in basement laboratories. The Davy-Faraday Research Laboratory can be seen as an attempt to provide a new conceptual model.

This required new architectural solutions, especially as each type of laboratory area might be used over time for a wide variety of purposes. In the basement of No 20, continuing south from Dewar's new chemical laboratory, Flockhart drew up plans for laboratories devoted to electricity, thermochemistry and biochemistry, as well as the workshop and boiler room.[184] The ground floor housed

Fig 3.97 No 20's first-floor Managers Room or Library, photographed not long after the building had been purchased for use by the Ri. Katherine M Reynolds' mid-1890s record provides clarification that this space's ornately decorative columns, cornice, ceiling plasterwork and bookcases all pre-date Guthrie. While it is suspected that the aggrandisement of this space took place in the mid-19th century, further research is required. Ri Archival Collection – Reynolds Collection

Fig 3.98 Library looking south. Katharine M Reynolds, late 1890s photograph, RIIC 0938

[182] RI MS RI/1/L/6/14a.
[183] RIBA drawing RAN/51/H/2/54.
[184] RIBA drawing RAN/51/H/2/17.

analytical and organic chemistry laboratories, and the balance room.[185] These were connected with the Entrance Hall of No 20 by a corridor, the floor of which received new tiling. On the second floor was the apparatus room,[186] while the third floor was given over to offices. A new top (fourth) floor was added to accommodate four optical rooms, a photographic room, another analytical laboratory and a chemical preparation room.[187] A lift at the eastern end of the building connected all of the floors together.

3.3.11 1896–1923: Slow development in the early 20th century

The Davy-Faraday Research Laboratory opened on 22 December 1896. A series of factors, including the way the laboratory was structured and some major disputes, resulted in it failing to be the success that had been hoped for. By the end of the Great War, with Dewar in his late seventies but refusing to retire, and the rest of the Ri's leadership of a similar age,[188] the laboratory had become quite moribund.[189] An indication of the ageing leadership can be gained from the fact that in 1904 Mond paid for a hydraulic ram lift to be inserted in the well of the northern staircase to provide access between ground and second floor,[190] ostensibly so that he could continue to visit Dewar in his flat.[191]

Dewar's death in 1923 was followed by the appointment of William Henry Bragg. The Ri and the laboratory both took on a new vitality: Bragg restored the Ri to the heart of science communication and made the Davy-Faraday Research Laboratory the most important X-ray crystallography laboratory in the world.[192] He changed its *modus operandi,* believing in the value of directed collaborative research rather than letting each scientist pursue their own particular interest as had happened in the early years. From 1923 onwards, all scientists working in the laboratory concentrated on the structure of organic molecules,

This change of approach was to have a marked effect on the fabric of the building. There was now no need for the large number of laboratories devoted to individual chemical specialities. As Bragg's

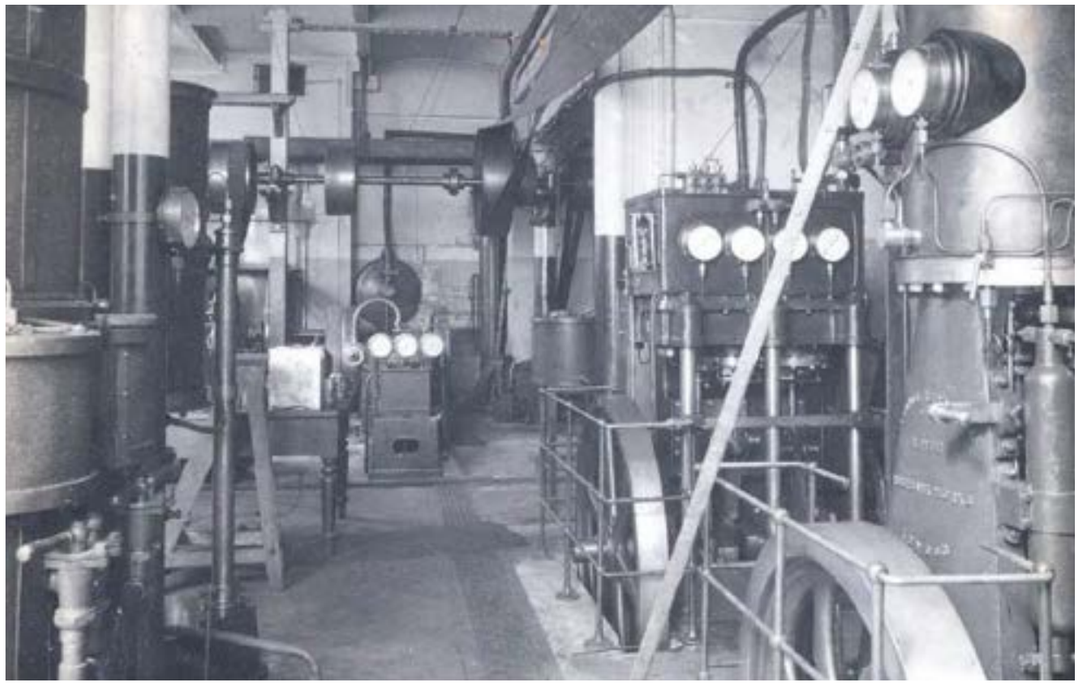


Fig 3.99 Old Laboratory with Dewar's cryogenic apparatus. Katharine M Reynolds, 1899 photograph, RIIC 0871

Fig 3.100 Dewar's new Laboratory. Katharine M Reynolds, 1899 photograph, RIIC 0873

185 RIBA drawing RAN/51/H/2/55.
186 RIBA drawing RAN/51/H/2/2.
187 RIBA drawing RAN/51/H/2/16.
188 Brock, *op.cit.* (32), p.188.
189 Watson, *op.cit.* (33), pp.219-21.
190 *Annual Report of the Visitors* for 1904, p.5.
191 See Ralph Cory, 'Fifty Years at the Royal Institution', originally published in 1950 and reprinted as Appendix 1 in James, *op.cit.* (2), pp.305–16, p.309.
192 Jeff Hughes, 'Craftsmanship and Social Service: W.H. Bragg and the Modern Royal Institution', in James, *op.cit.* (2), pp.225-47.

c.1924 sketch of the room allocation shows, most of the rooms in No 20 had been turned into offices for the scientists.[193] His activities extended into the Professors' Laboratory: it is from this date that the once important distinction between the Ri laboratory and the Davy-Faraday Research Laboratory began *de facto* to lose its meaning.

3.3.12 1927–1937: Transformation

On 29 December 1927, less than an hour after EN da C Andrade had delivered his Christmas Lecture to several hundred children, the electrical substation in the Ri's basement exploded. The blast caused windows to smash, and in front of the building, manhole covers 'shot into the air', flames leaping to the height of second-floor windows.[194] Fortunately, there were no casualties, but the thought of what might have occurred had the explosion happened an hour earlier prompted the leadership to address the long-running inadequacies of the Lecture Theatre. As the lectures assistant WJ Green put it in a talk in 1956: 'The fittings and services were a patchwork accumulated for generations; the whole thing, in fact, [was] capable of becoming a veritable inferno.'[195]

The works to rectify damage to the fabric were all but completed within a month. The cost for remedial works was £650 to the Ri and £50 to the Davy-Faraday Research Laboratory.[196] Through the spring of 1928, as the works were undertaken, a sub-committee of Managers (including William Henry Bragg and involving Leonard Rome Guthrie) gave consideration to more ambitious plans to improve the building.

Guthrie, the Ri's appointed architect, was asked by the Managers to report 'on the safety of the Lecture Room'.[197] Further to receiving Guthrie's report, the decision was taken to rebuild the entire northern end of the building. The building committee, which played a crucial role in overseeing this work, was to keep its own minute book.[198]

Although the initial scope of the plans extended no further than improving the Lecture Theatre, in the end the scheme proved extensive: between 1929 and 1936 all internal parts of No 21 – bar the historic Entrance Hall and the parts immediately above and

Fig 3.101 The frontages of Nos 20 and 21 in 1912. Further research is required to provide clarity over the date at which No 20 received its distinctive doorcase and first-floor balcony. Ri Archival Collection

193 RI MS WHB 27A/92.
194 Caroe, ADR *The House of the Royal Institution* pp 35-36.
195 W.J. Green, 'Some Memories of the Royal Institution and its Laboratories 1900–1950', originally published in 1956 and reprinted as Appendix 2 in James, *op.cit.* (2), pp.317-330, p.330.
196 Managers' Minutes 1920–1929 RI-MS-AD/02/B/02/A19 – 6 February 1928, item 17d
197 RI MS MM, 6 February 1928, **19**: 253.
198 RI MS RI/1/C/1/1.

below it – were dismantled and reconstructed. This was to prove the most comprehensive building project to be undertaken in the Ri since the original conversion.

Funding the scheme

The cost of 'reconditioning the theatre' was estimated at £40,000. The task of raising such a sum, in such straitened times, must have been daunting. However, the Ri did have a new income, in the form of rent. In the inter-war years, the narrowing of the focus of research activities meant that far fewer types of laboratory were required, freeing up space that could be leased to third parties. Most of the basement and the northern half of the ground floor of No 20 was now leased to the jeweller Cartier. It installed the existing shopfront[199] and linked its new showrooms with the existing ones in Bond Street.

A second injection of income came in July 1929 at the sale of the Ri's manuscripts relating to the American War of Independence.[200] However, any thought of extending the scope of the improvements beyond the 'reconditioning of the theatre' was reliant on extra monies being raised by the Appeal Committee. Appointed in March 1929, the Committee was to meet on seven occasions between then and July 1930, and hosted two luncheons, to which influential people were invited. It proved itself extremely effective: including the £30,000 realised at the sale of the manuscripts, £24,500 in general donations (Robert Mond £5,000, Mr S Insull £5,000) and

[199] Tyrrell, *op.cit.* (39, 3), p.57. This is not shown on Katherine M. Reynolds's 1890s photograph of the exterior (RIIC 0906).

[200] Managers' Minutes 1920–1929 RI-MS-AD/02/B/02/A19 – 1 July 1929 and 2 February 1930. The manuscripts, which had been presented to the Ri by John Symmons in 1804, were sold to Mr Philip Rosenbach of Philadelphia in July 1929.

Fig 3.102 William Henry Bragg in his Ri study. Detail of watercolour by Gwendy Caroe

Fig 3.103 No 20's shopfront was installed between the wars when the ground floor was first leased to Cartier

a further gift of £16,000 from the Pilgrim Trust, by February 1931 a remarkable sum of £91,500 was raised.

The 1929-30 scheme: the Theatre

Last 'brought up to the ideals of the time' in the late 1890s, it was the Theatre that particularly concerned the Ri's Managers. In terms of 'the structure, the seating and the exits', there was agreement that 'considerable changes' would be required to enable the Theatre to conform with 'requirements … now usual and indeed enforced in the case of public buildings'.[201] By July 1928, the Managers had agreed upon the need for a major programme of improvements, described at the time as a scheme of 'reconstruction'[202]. A circular, sent to Members, explained the concerns, and the need for the works be 'taken in hand at once', not least to ensure preservation of the famed 'excellence' of the Ri's lectures.

By 4 March 1929, the London County Council had evidently already given provisional approval for the Theatre works, including the addition of two back staircases, which they insisted should provide safe passage straight to the street 'without passing through intervening rooms'. This required a new external opening in Vulliamy's 1838 frontage; on the plus side, no change was needed to the existing doorways through to the Ante-Room.[203]

The Lecture Theatre and the space beneath it were dismantled to basement level (Fig 3.104) and a structural steel frame inserted to support the new interiors. On the first floor, the new Lecture Theatre was designed and refitted to resemble closely the appearance of its predecessor, but with improved seating, heating, ventilation and above all safety features. The installation of a cinema projector caused a major planning wrangle with the LCC but was eventually approved.[204] The Lecture Theatre was surrounded by an Ambulatory with display cases to hold some of the historic scientific apparatus.

The Managers considered whether to restore the Theatre to its form in Faraday's time or rebuild it as it was prior to being dismantled. In June 1929, Guthrie raised concerns at the idea of full restoration, expressing doubts that the LCC's fire regulations would permit the reinstatement of the 1870 Japanese wallpaper.[205] Further to

Fig 3.104 Demolition of Lecture Theatre. WJ Green, 1929 photograph, from Proc.Roy.Inst., 1956, 36, 543-67, facing p. 556

[201] Managers' Minutes 1920–1929 RI-MS-AD/02/B/02/A19 – 16 July 1928
[202] Managers' Minutes 1920–1929 RI-MS-AD/02/B/02/A19 – 16 July 1928
[203] Managers' Minutes 1920–1929 RI-MS-AD/02/B/02/A19 – 4 March 1929
[204] LMA GLC/AR/BR/07/4171.
[205] To this concern the Treasurer volunteered to 'speak privately on the matter to Mr CR Peers, Secretary to the Royal Commission on Ancient Monuments. Managers' Minutes 1920–1929 RI-MS-AD/02/B/02/A19 – 3 June 1929

consultation, Guthrie's concerns were nullified and 'the mahogany panels with Japanese paper from the walls of the Theatre' were restored, with the front of the gallery 'constructed in panelled mahogany in the same general style as before'.[206]

The natural conservativeness of the Managers and their Building Committee saw the Theatre seats 'covered with material as closely resembling that in the old theatre as possible'. The same eye to history required Guthrie, in July 1930, to redesign his proposed layout of the front row of seats opposite the lecturer's table 'so that the President's chair used formerly in the theatre could be restored'.[207]

The cupola, meanwhile, was not a slavish replica as it incorporated contemporaneous technology and was built from ferrous concrete, but it was intended to recreate the space of the former auditorium. It comprised a plaster oculus, surmounted by an octagonal tower with clerestory lights and a copper roof dome. The space within was divided into two with winding gear installed in the upper section, accessed via an external ladder. The lower section contained the openable clerestory window lights and a clear space within which the copper dome could be lifted. The mechanism included guides fitted into the walls and wire cables extending up to the winch above.

When the Theatre came back into use, the only change that audiences commented upon was the loss of the cast iron gallery supporting columns.

The 1929-30 scheme: The Main Entrance

In December 1929, Guthrie set out his designs for the Entrance Hall and adjacent parts of the building[208]. The impressive new main entrance was to be created immediately to the north of No 21's historic entrance, in the space formerly occupied by the Porters' Room. Affording a level of decoration seen nowhere else in the new interiors, Guthrie explained that he had endeavoured 'to preserve and extend the Adam style of which the existing staircase hall was so fine an example'.[209]

The initial plan had been to decorate the Entrance Hall with 'a frieze of Adam design'. In April 1930, the Building Committee instructed that this be substituted with a frieze 'depicting incidents of scientific discovery'.[210] If funds allowed, the Entrance Hall was

Fig 3.105 Early 1930s photograph of the working spaces of No 21's eastern parts under construction. Ri Archival Collection

206 Building Committee Minutes RI-MS-AD/02/B/07/E/01 – 3 April 1929
207 Building Committee Minutes RI-MS-AD/02/B/07/E/01 – 14 July 1930
208 Building Committee Minutes RI-MS-AD/02/B/07/E/01 – 19 December 1929
209 Building Committee meeting minutes, 19 December 1929
210 Building Committee Minutes RI-MS-AD/02/B/07/E/01 – 3 April 1929

also to allow for nine ‘bas relief panels to be placed over the doors’. William Henry Bragg mooted that he wished ‘to provide one or more of these in memory of Lady Bragg’. Although funds did not permit the creation and installation of these reliefs, in 1931 Bragg did commission Ernest Gillick to make a commemorative relief panel to occupy the centre panel in the Hall’s east wall.[211]

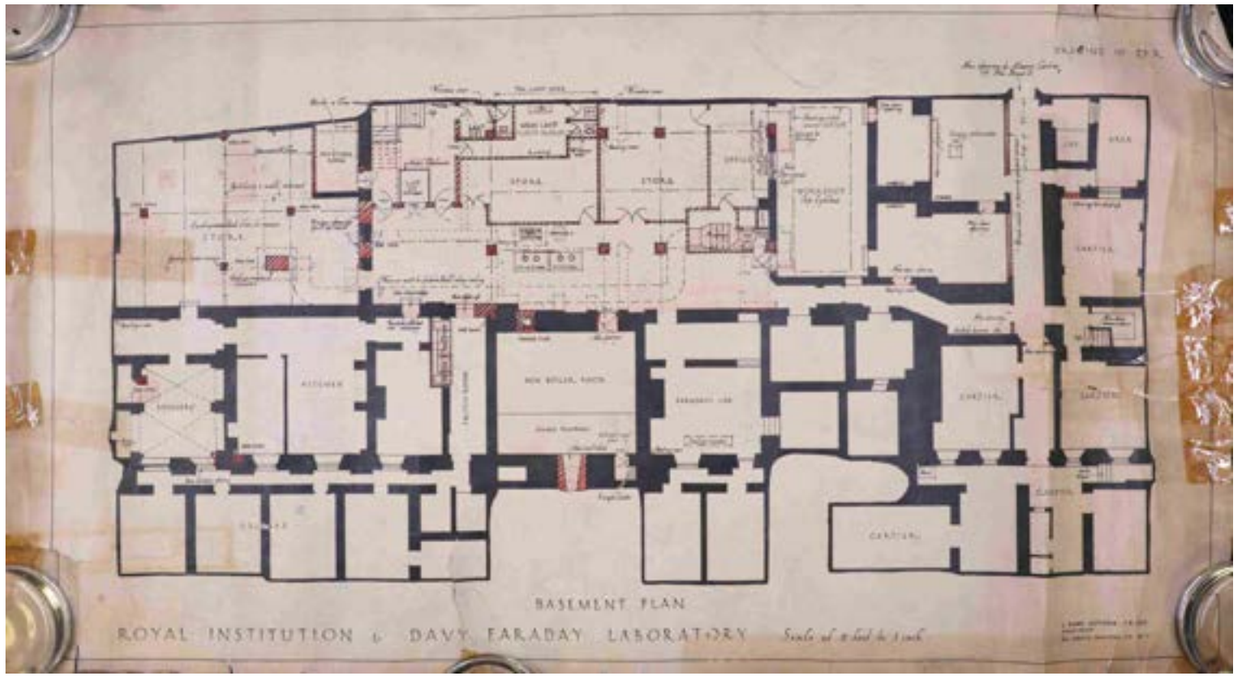
In their deliberations over flooring material for the Entrance Hall, the Building Committee eschewed the perhaps more practical and presumably cheaper option of ‘rubber’, preferring Guthrie’s grander suggestion of ‘specimens’ of black and white marble squares.[212]

The 1929-30 scheme: Wider improvements and extension

With funds available, the Managers took the opportunity to extend the scope of works to include a raft of general improvements and expand the building upwards and eastwards. The space to the north of the new main entrance was now turned to use as the Managers’ room, and the room beyond it was fitted out for use by the Secretary.

At first-floor level, the Ante-Room was enlarged, projecting further east than its predecessor. Between this extension and No 20’s Georgian Room was constructed a long corridor. Known as the ’Red Corridor’ (now the Lecturer’s Corridor), this facilitated a 360-degree circulation pattern on the first floor. The ‘Prep Room’[213] and office spaces of the extension were accessed off the corridor.

On the second and third floors, the Director’s Apartment doubled in size, with the addition of extra bed and utility rooms as well as a studio on the third floor.[214] Additional living rooms in the upper part of the building were also provided ‘for alternative accommodation for porters and cleaners’.[215] In exchange, a number of old third-floor attic bedrooms were turned to use as laboratories.[216] A common room was built on the top floor of No 20, which soon became known as the table tennis room.[217]



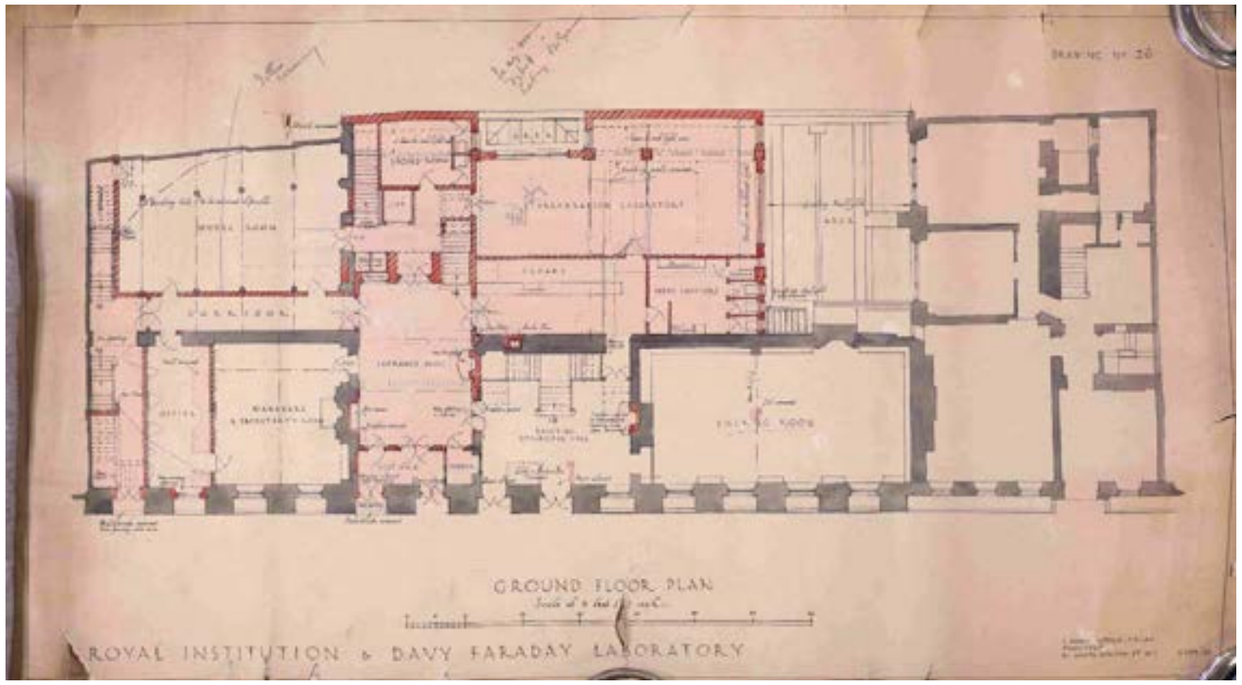


Fig 3.106 and 3.107: Basement and ground-floor plans which tell of the extent of the works undertaken in the first LR Guthrie designed scheme of works. The archives of the Ri house a wealth of Guthrie drawings. The colour annotation of this set enables the extent of work to be clearly appreciated. Ri Archival Collection

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211 Managers’ Minutes 7 December 1931

212 Building Committee Minutes RI-MS-AD/02/B/07/E/01 – 3 April 1929

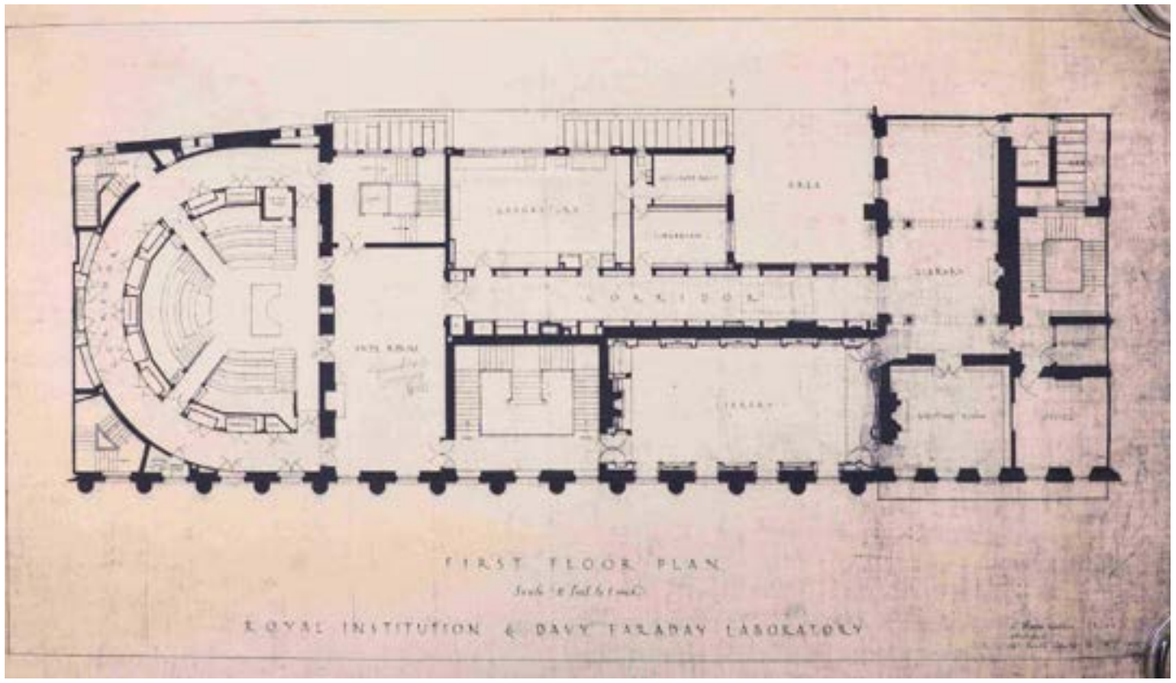
213 The term used to denote the place where experiments and demonstrations were prepared for use in the Lecture Theatre.

214 This might seem excessive for Bragg. However, his wife had died in 1929 which resulted in his daughter Gwendy (1907–1982) taking on the role of social secretary which she continued to do after her marriage in 1932 to Alban Caroe (1904–1991). They returned to live with Bragg shortly after their marriage. The studio was needed to serve the considerable artistic talents of all the Bragg family.

215 Building Committee Minutes Ri MS AD/02/B/07/E/01 Aug.8,1929

216 Caroe p.37

217 Quirke, *op.cit.* (43), p.253.



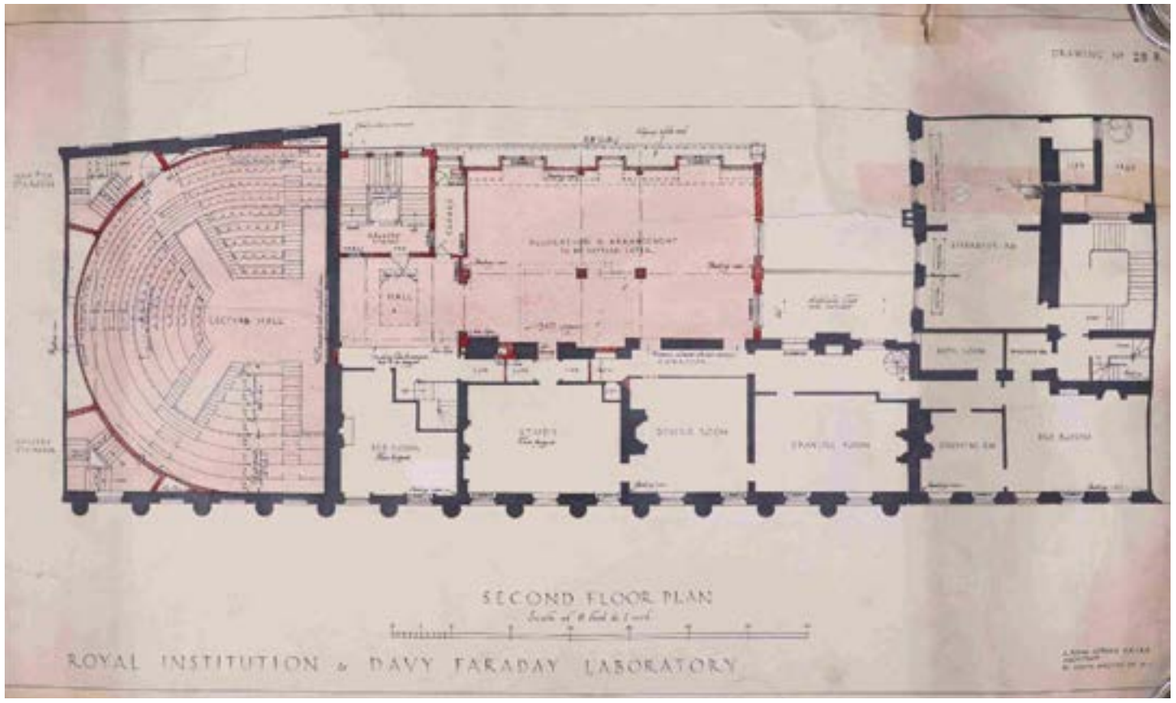
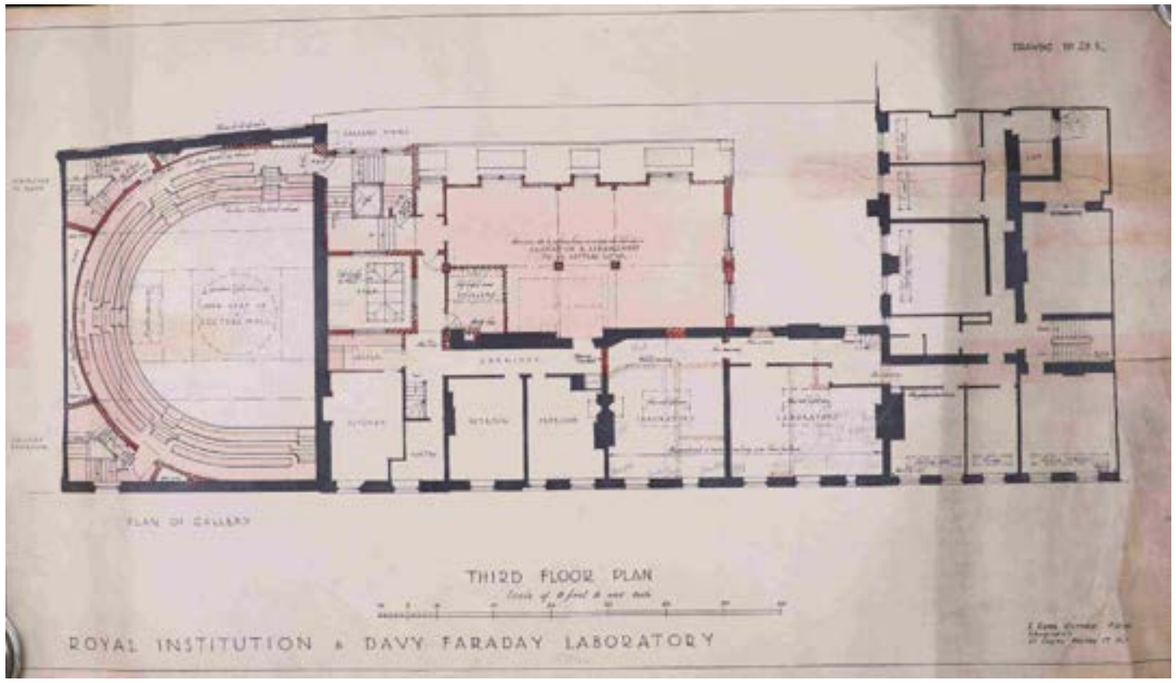


Fig 3.108 and 3.109: First and second-floor plans which tell of the extent of the works undertaken in the first Guthrie scheme of works. Ri Archival Collection



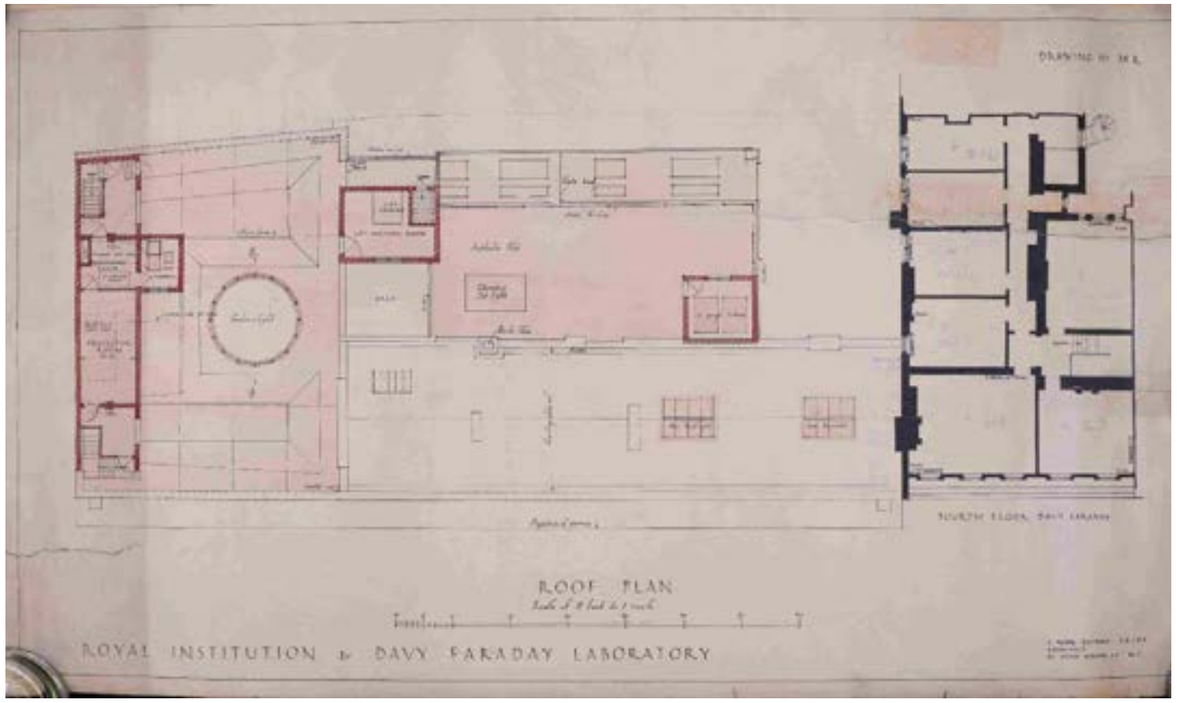


Fig 3.110 and 3.111: Third and fourth-floor plans which tell of the extent of the works undertaken in the first Guthrie scheme of works. Ri Archival Collection

The eastern extension required the demolition of the 1872-built laboratory to the east. In its place a steel-framed structure was built, rising up in steps, to the third floor. As part of this work, the northern staircase and lift were removed, with their replacements sited nearer to the eastern boundary. In the basement, a workshop (modified from Dewar's Laboratory, Fig 3.100), storage areas, mess rooms and various utility areas were created, as well as a laboratory for the X-ray diffraction machines next to Faraday's Magnetic Laboratory. This last was now renamed 'the museum'.[218] In the eastern extension, a laboratory was installed in the same place as the laboratory that had existed in 1872. To the north were located an apparatus store, offices and cloakrooms.

The progress of the scheme

While the scheme was initially focused on the Lecture Theatre, from an early juncture the Managers contemplated the option of easing stress on the Library and public reception rooms by exploiting the 'considerable, vacant and at present useless space behind the main building'. Evidence of the steady progress made in planning the works can be seen in the fact that the Managers saw fit to invite both Guthrie's partner WB Simpson, as well as the project's quantity surveyor, Mr Selby, to their meeting of 4 March 1929. While still having it in mind to pursue the larger scheme, including 'the corridor and additional rooms in the well', at this meeting the Managers agreed to 'support the minimum scheme', estimated at a cost of about £40,000, 'of reconditioning the theatre'.

In early June 1929, Guthrie reported that tenders had been received from 10 firms. The range of quoted Figures – from £63,562 to £71,635 – indicates that, soon after their meeting of March 1929, the Managers had decided to proceed with the more ambitious, extensive scheme. On 1 July, the Managers agreed to officially accept the lowest tender and press for the programme – of between 50 and 62 weeks – to 'be proceeded with immediately'. By the end of 1930, the building was sufficiently ready to host the Christmas Lectures,[219] and the following year the Ri served as home to the massive celebrations to mark the centenary of Faraday's discovery of electromagnetic induction.[220]

The mid-1930s scheme

In April 1935, Guthrie was called to the Ri to inspect deflection that had been noticed in the floor of Bragg's flat and the ceiling of the Library below. At the Managers meeting of 7 May, Guthrie presented his initial findings: the principal timbers and ceiling

Fig 3.112 The northern end of the first-floor Library photographed in the 1890s. Ri Archival Collection

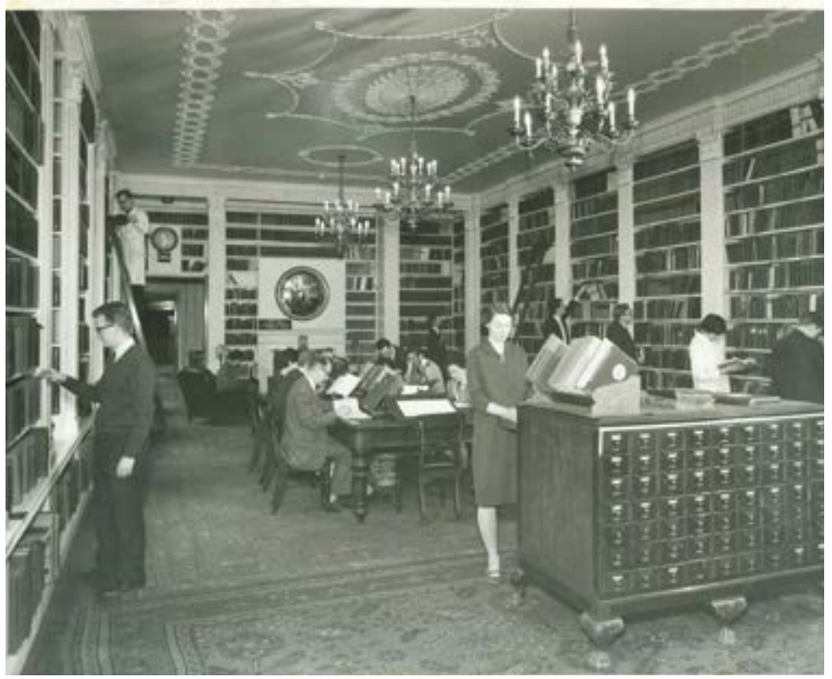


Fig 3.113 The Library soon after the Guthrie-designed mid-1930s rebuilding. Ri Archival Collection

[218] As shown on Guthrie's 1936 plan, RI MS P29.
[219] RI MS MM, 1 December 1930, **20** 59.
[220] *Report on the Faraday Celebrations 1931*, London, 1932.

joists were defective and there were clearly issues with the structural integrity of the front wall, not least as a result of the changes made during Vulliamy's 1838 reworking of the facade. The further works of opening up that Guthrie requested were undertaken with some haste – by mid-July he was able to appraise the Managers on the findings of his more detailed investigations. The architect reported the external walling of the Library and Newspaper Room beneath it to be in a condition 'far more serious than was at first anticipated'.[221] The District Surveyor had been brought in and had instructed that the 'cracked and crushed brickwork' in the west (Albemarle Street) wall would need to be 'replaced' before being 'allowed to carry the weight of new floors'.

Adjudging it not 'practicable' to rebuild the walls in the manner mooted by the District Surveyor, Guthrie recommended to the Managers that the new floors be supported on a steel structure built within the existing brick walls. It was necessary to carry the foundations of this steelwork to basement level. The lowest tender for the Library reconstruction – that of £11,132, presented by Messrs Holloway Bros of London – was accepted in late August 1935. The date for the completion of the works was set at 21 March 1936.[222]

With the existing basement, ground- and first-floor rooms stripped out, entirely new interiors were constructed for the Library and the space that became the Conversation Room on the ground floor. In the basement, this scheme allowed for the construction of 'a large new laboratory'.[223] The success of the work to dismantle and reconstruct Faraday's Magnetic Laboratory can be gauged by comparison of an 1897 photograph (Fig 3.114) with its 21st-century appearance (Fig 3.115).[224]

Details of the form in which the Library was to be rebuilt were not approved until February 1936. At this date, Guthrie's original proposal was amended, with plans for a column-supported gallery at the south end dropped, and all door openings increased in breadth. Guthrie's approved new design featured a curved wall at the south end of the room with radial exit doorways.[225] The wealth of exuberant Guthrie-classical decoration in the Library and Conversation Room speaks volumes of the Managers' satisfaction with the style of the 1929-30 works and their keenness for the second phase to ensure stylistic homogeneity.

Fig 3.114 Faraday's Magnetic Laboratory. Katharine M Reynolds, 1897 photograph, RIIC 0864

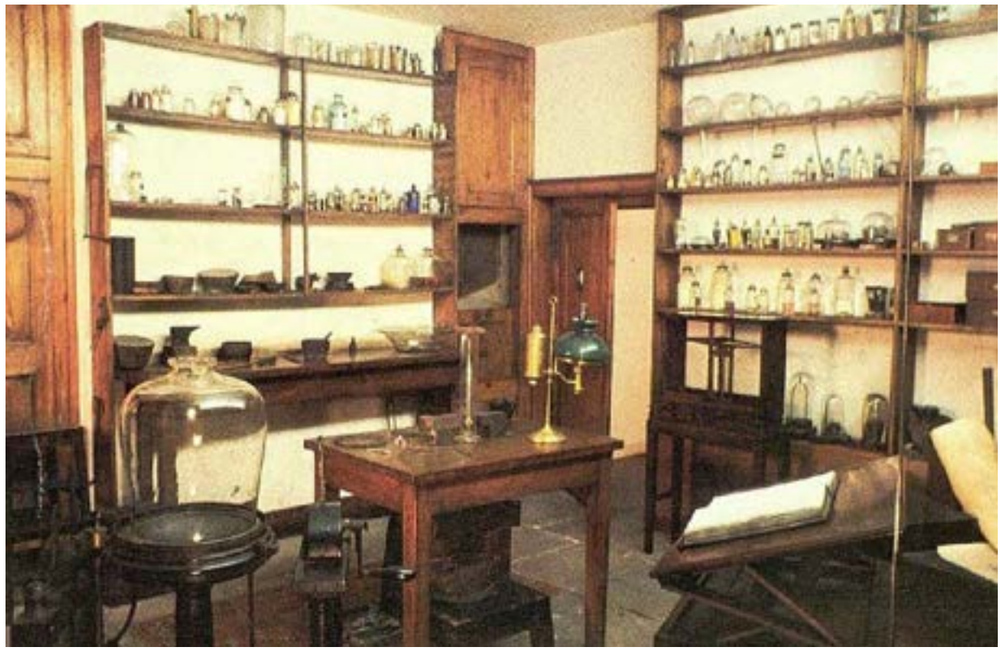


Fig 3.115 Faraday's Magnetic Laboratory. 2003 photograph

221 Ri MS MM, 4 Nov. 1935
222 Managers' Minutes 27 August 1935 & 4 Nov. 1935
223 Managers' Minutes 4 November 1935
224 See Faraday Museum Gazetteer (in the appendix).
225 Managers' Minutes 21 February & 11 March 1936

Facilitating progress while respecting the past

The Managers' commitment to the Ri's heritage is interesting to note, at a time when many architects were looking to slough off the old ways for the new in the wake of the First World War. In their circular of July 1928, the Managers reassured Members that they were 'determined to maintain the traditional appearance of the theatre'. Further evidence of concern that the scheme might cause losses to the Ri's 'dignity' and 'select character' can be seen in a letter that one Manager, James Crichton-Browne, penned to the Ri's Treasurer and Vice President.[226] Crichton-Browne pleaded that all efforts be made to guard against the Ri 'in any way approximat[ing the appearance of] … a polytechnic or subscription library'.

The Managers evidently made it clear to Guthrie that the interiors must respond to the classical form and decorative embellishment of the mid-1770s Staircase Entrance Hall. While Guthrie made use of constructional techniques and materials of his own time, stylistically and in decoration he responded to No 21's existing 18th-century example – see the near replica plasterwork runs of guilloche, Vitruvian scroll and palmettes and the copied form of the staircase's iron balusters.

The documentary record shows that, even in these pre-1947 Town and Country Planning Act times, the local authority was engaged in the scheme planning. Guthrie, for instance, considered it necessary to seek the consent of the LCC for 'the removal of the door between the main corridor and the Ante-Room'.[227]

Guthrie's other architectural projects in the late 1920s and early 1930s shed further light on his stylistic approach. As the Ri project was getting under way, work was being completed on the premises of Fortnum & Mason in Piccadilly. As was to be the case at the Ri, the proprietors of Fortnum & Mason required Guthrie to design a 'modern building on traditional lines … in accordance with the prestige of the firm'.[228] Parallels might also be drawn with No 63 Harley Street (1933), which Guthrie also designed from scratch. Here the frontage has the feint whiff of Art Deco while clearly being conceived in the polite, ordered and proportionally 'just right' language of Georgian classicism. Within this ophthalmic surgeon's home, Guthrie retained the clarity and discipline of classical architecture while giving a little more rein to Art Deco flourishes.[229] The hall's ceiling shows the same shallow stepped modulation that enlivens the Ri's Entrance Hall.

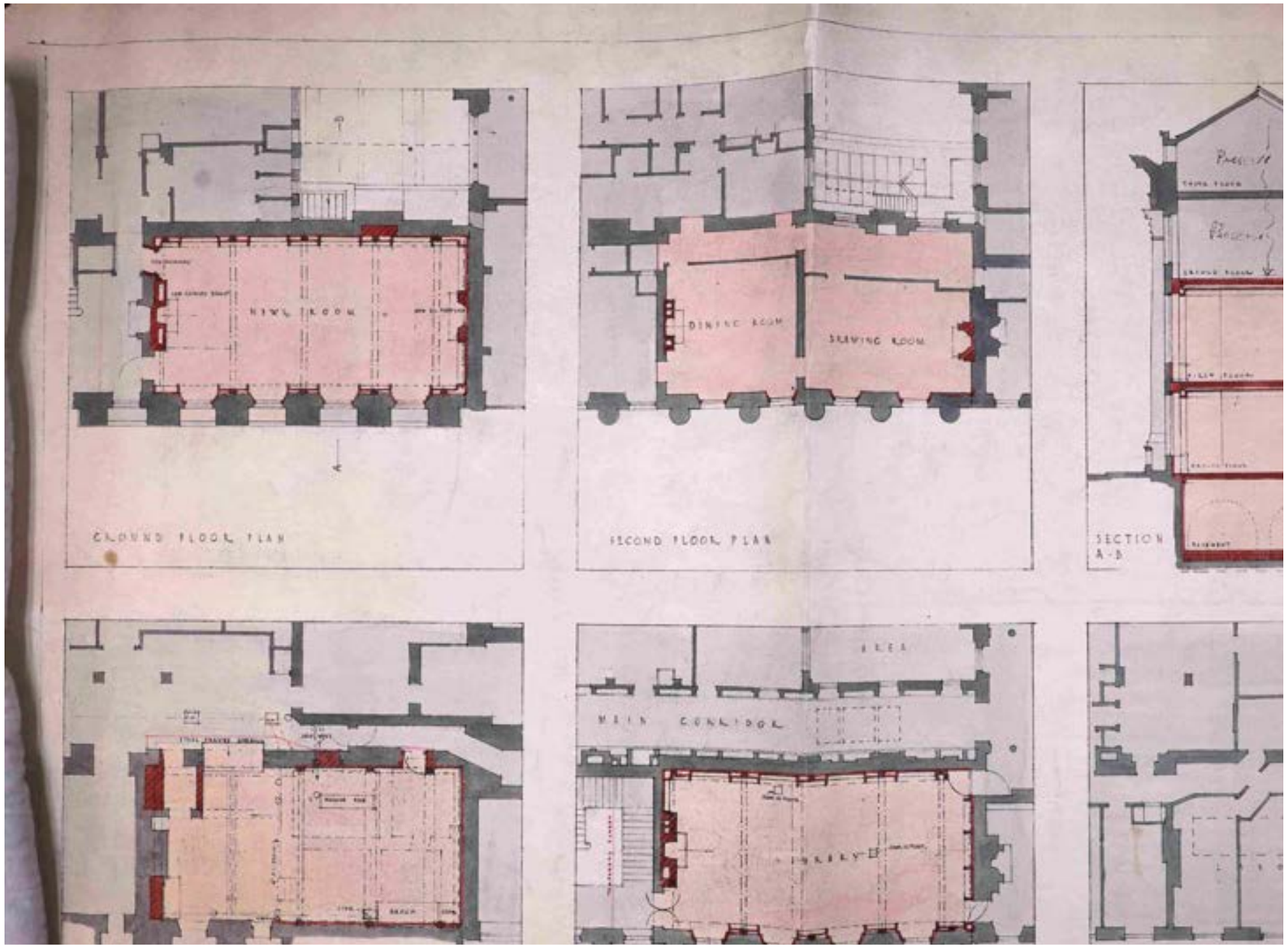


Fig 3.116 A Guthrie drawing with a section and floor plans, which combine to give a handsome full account of the mid-1930s scheme of works. Ri Archival Collection

[226] Managers' Minutes 1920–1929 RI-MS-AD/02/B/02/A19 – 16 July 1928
[227] Building Committee Minutes RI-MS-AD/02/B/07/E/01 – 3 April 1929
[228] Architects Journal 6 March 1929
[229] Architectural Review April 1934 pp. 123-4; Ideal Home Building, 16 August 1970

Fig 3.117 Fortnum & Mason on Piccadilly, built to the designs of Guthrie

Fig 3.118 In his design for 63 Harley Street, Guthrie ably inserted his contemporary facade into its historic setting

Fig 3.119 In the interiors of this building the architect was able to unleash his flair for Art Deco

While Guthrie might not have been a stylistic progressive, his buildings reveal a highly competent architect who delivered to his client's aspirations. In the aftermath of the 1927 explosion, the Ri's Managers immediately lent on his expertise. The weight of the Ri's history clearly bore down on the Managers, and they were anxious to embrace and respond to the tangible built remains that would have been known to the scientific luminaries of the 19th and early 20th centuries. In spaces such as the ground-floor managers' room, previously a relatively plain space, Guthrie was given rein to aggrandise through the liberal overlay of highly decorative cornicing, dado banding and richly detailed fixtures. However, the best of the 1929-36 interiors is the main entrance, where the decorative exuberance is tempered by the playfulness of the 'scientific discovery' frieze and the hints at Art Deco in the ceiling modulation.

It appears that no neo-Georgian aggrandisement was required in the eastern extension. In sharp contrast with the 'polite' public spaces, these working spaces have an honest clarity, their pared-back simplicity reflective of the economically straightened era in which they were built.

Guthrie's transformation: conclusion

Executed during the depression, the works of 1929-36 transformed the Ri. As ADR Caroe wrote in 1963, ''Guthrie as architect … gave us most of the building we now know'.[230] Patterns of circulation were improved enormously and – a key priority in the aftermath of the explosion – the building was now considered fire-proof. Writing less than 30 years after the completion of the works, and informed by the recollections of 'many Members' who remembered the Ri's form prior to the Guthrie scheme, Caroe remarked that 'the character of the place changed extraordinary little'.[231] The building was rendered efficient and its dignity retained: 'Here we find intermingled, tradition and modernity, the graces of society and the functionalism of scientific research.'[232]

Leonard Rome Guthrie is by no means a household name. His work was not avant-garde and for generations there has been a tendency to dismiss the inter-war buildings of those who worked in or leant upon the classical tradition. At a time when the driving force of progressive architecture was modernism, Guthrie and his one-time collaborator Edwin Lutyens worked at variance with the movement. Each responded, in their very different ways, to the classical tradition. As Guthrie was transforming the Ri, Lutyens was

Fig 3.120 In this late 19th-century photograph can be seen the form of No 20's first-floor Writing Room, soon after the building had been acquired for the purposes of the Ri. Note the appearance of the bookcases and the cornicing. With the notable exception of the Grand Stair Hall, the polite rooms of No 20 were considerably more decorative than those of No 21. In the 1927-37 scheme Guthrie clearly took his lead from the decorative No 20, lavishing No 21's formal, public-facing spaces with highly decorative cornicework, dado rails, bookcases etc. Ri Archival Collection – Reynolds Collection

Fig 3.121 In the 1930s scheme Guthrie increased the extend of book shelving in the Writing Room, carefully copying the form of the pre-existing arrangement

[230] Caroe, ADR The House of the Royal Institution (1963) p. 36
[231] Caroe, ADR The House of the Royal Institution (1963) p. 36
[232] Caroe, ADR The House of the Royal Institution (1963) p. 40

working on the Viceregal Palace in New Delhi and First World War memorials, such as that at Villiers Brettoneux on the Somme. In the design of these places, Lutyens was able to harness and abstract classical tenets of order and proportion to create structures and buildings that were architecturally progressive.

Guthrie, by contrast, was a pragmatist who borrowed from the classical lexicon and, in the case of the Ri, delivered greatly improved, safe and functional interiors, respectful of all that had gone before. Capable, pragmatic and achieving just what his clients required, Guthrie's work speaks volumes of its time. His buildings respond to the classical tradition in quite a literal, surface way and serve as fascinating bearing points from which to appreciate the inter-war stylistic conversation (and reflect on the genius of Lutyens). The lack of any account of Guthrie's Ri work in the British Architectural Library's biographical file (for the practice Wimperis, Simpson & Guthrie) represents a significant omission.

Fig 3.122 The playful arrangement and detailing of Guthrie's Entrance, c.2007

Fig 3.123 Taken in January 1923, this photograph provides an invaluable record of the Grand Stair Hall's form prior to the transformative works of the early 1930s. Note the wall mounted clock and noticeboard at the head of the first flight of stairs, the portraits cutting across the primary plaster frames, the corner fixed lighting arrangement, the under-stair door and the plain flooring. Ri Archival Collection

Fig 3.124 The Grand Stair Hall's unapologetic black and white marble floor was an early 1930s LR Guthrie introduction. At this date the original floor was removed for replacement with one of reinforced concrete. The half round headed opening in the wall at the head or the stair's first flight was introduced in the first decade of this century, as part of the endeavour to make the Ri more inviting, open and accessible

Fig 3.125 Mid-1890s Katherine M Reynold's photograph of the north-east corner of the first-floor Ante-Room. Note the handsome (probably mahogany) doors and doorcases, the steps up into the Theatre and the relative simplicity of the cornice and the fire surround. Ri Archival Collection – Reynolds Collection

Fig 3.126 Undertaken in times of economic depression, the campaign to raise funds for works to the Ri proved highly successful – to the extent that Guthrie was given rein to embellish formal spaces such as this with a decorative entablature and his trademark egg and dart door surrounds. The total dismantling of the northern end of the building permitted floor levels – not least between the Ante-Room and Lecture Theatre – to be regularised. 2026 photograph

The Georgian Room's chimneypiece

The last of Guthrie's pre-Second World War works at the Ri related to the installation of a historic fireplace. Thought to have been made in 1773-75, quite possibly to the design of Sir Robert Taylor, this chimneypiece was relocated to the Georgian Room on the first floor of No 20 in 1938.[233] It had originally graced the Georgian Room of Joseph Banks' London home at 32 Soho Square – the building in which the Ri's first meetings were held. At its demolition in 1937, the contents of 32 Soho Square were sold off and Sir Robert Hadfield, purchaser of the chimneypiece, donated it to the Ri.

The chimneypiece is marble and features flanking fluted Ionic columns, supporting an entablature with fluted architrave and frieze capped by a moulded cornice. Oval paterae flank the frieze and at its centre is set a jasperware (or stoneware) tablet featuring a low-relief depiction of 'offering (or sacrifice) to Flora'.[234] This tablet was modelled for Josiah Wedgwood by John Flaxman Junior – correspondence between Wedgwood and Flaxman in 1782 provides evidence of the date, the maker and possibly the modeller of the tablet. As Banks did not move into 32 Soho Square until 1777, it might be taken that the Wedgwood tablet was a Banks-commissioned addition to the existing fireplace.

The 1782 tablet was stolen in 1914. When the chimneypiece was sold in 1938, its place had been taken by a marble tablet on which was carved a reclining nymph. The jasperware tablet in the fireplace today was purchased in 1938. It is possible that this is actually the stolen original.[235] The installation of the fireplace was to be the final significant piece of work in the building before the outbreak of war.

At approximately the same time, the Ri purchased 19 Albemarle Street, originally to generate income.[236] The lower floors, at least, were occupied by a tailor until the mid-1960s, when the art dealer Pattersons became the tenant. A random sampling of electoral registers suggests that the upper floors were used as private flats until the 1940s, when they became offices.

Fig 3.127 The Georgian Room's chimneypiece. Made in the mid-1770s, quite possibly to the design of Sir Robert Taylor, this chimneypiece was installed, at first-floor level in No 20, in 1937

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[233] The remodelling of 32 Soho Square in 1773-5 is thought to have been undertaken to the designs of Robert Taylor. JW Bransgrove, 'Jasperware at 32 Soho Square: A Chimney-Piece Tablet for Sir Joseph Banks' *The Georgian Group Journal* Vol. XXXI (2023) pp. 91–102

[234] Jasperware was a pottery type developed by Josiah Wedgwood in the 1770s. Unglazed, it is distinctive for its matte finish and use of a background colour.

[235] AT Bolton 'A small Town House of the XVIIIth Century: 32 Soho Square, the London Home of a Great Naturalist', *Country Life*, 34, issue 873 (27 September 1913); 'Gift to the Royal Institution: Adam Mantelpiece at the Royal Institution' *The Times*, 8 March 1938, p.21; T Martin, An Historic Mantelpiece at the Royal Institution', *Nature*, 141 (1938), pp.437-39; T Martin, 'An Historic Mantlepiece from the House of Sir Joseph Banks', *The Proceedings of the Royal Institution of Great Britain*, 30 (London: The Royal Institution of Great Britain, 1937-39 [1938]).

[236] On this see Tyrrell, *op.cit.* (39, 2), pp.224-5. The information in the rest of this paragraph is derived from rate books, street directories and electoral registers in CWAC.

3.3.13 1937-2003: Progress to the new Millennium

During the spring and summer of 1938, following the *Anschluss* in mid-March, areas at the northern end of the basement[237] were converted into gas and bomb shelters in preparation for war. These works were intensified following the Munich crisis and the occupation of Czechoslovakia. With the Nazi invasion of Poland on 1 September 1939 and the Anglo-French declaration of war two days later, the Ri was designated a public air raid shelter by Westminster City Council.[238] The workshop quickly became a location for the scientific instrument makers Hilger and Watts (of Camberwell), on behalf of the Ministry of Supply, for the manufacture of bombardment levels for artillery pieces.[239]

During the course of the war, the Ri was used as a meeting place and office location by a number of government and Allied organisations, ranging from the Ministry of Food to the Allied Science Commission. From its offices in No 19, the Commission was responsible for seeing that science would play its role during the period of post-war reconstruction. William Henry Bragg died in 1942 to be succeeded by Henry Dale, who, among other duties, chaired the Scientific Advisory Committee of the War Cabinet.

On 12 October 1940, a high-explosive bomb hit 29 Dover Street.[240] This destroyed the car showroom next to the Ri on Albemarle Street, killing the manager, and blew out many of the Ri's windows.[241] This may have been what led to the bricking up of the first- and second-floor windows of No 20's staircase in summer 1941.[242] Further damage was caused when a V–1 destroyed Lansdowne House at the southern end of Berkeley Square on 20 August 1944.[243] One side-effect of the attacks on London was that the Ri's General Secretary, Thomas Martin,[244] whose house was bombed, was allowed to move into part of the flat on the third floor of No 21, which required minor alterations.[245] This war-time arrangement lasted until 1950 when Martin was forced out.[246]

Fig 3.128 Detail of a photograph showing the Ri in 1941 when it housed an air raid shelter, NMR BB032583

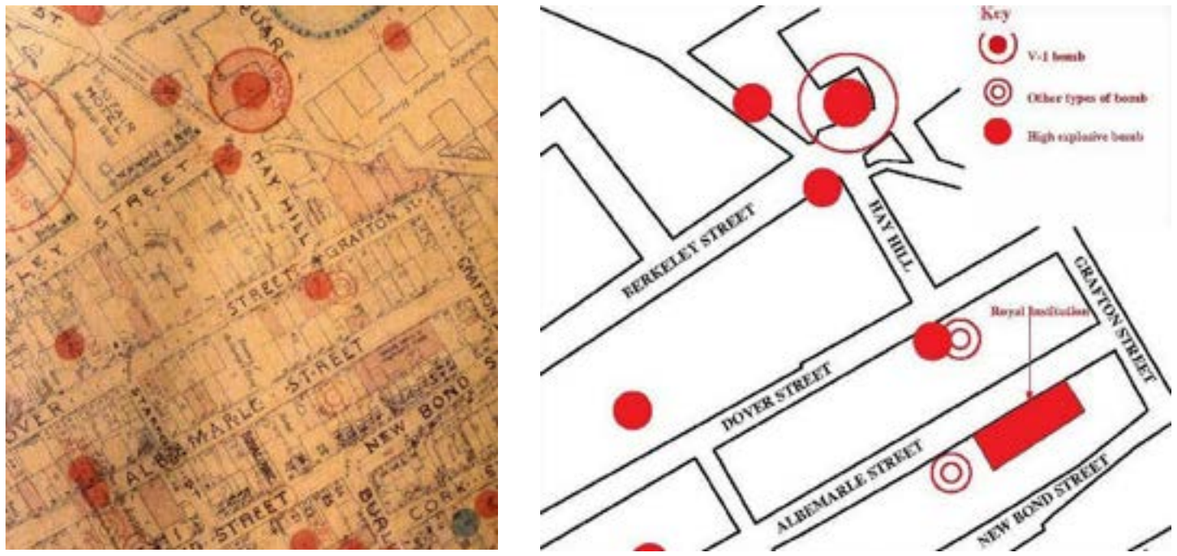

Fig 3.129 Map of bomb incidents in the neighbourhood, 1940-1945. CWAC

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237 This location was determined following a conversation on 19 December 2002 between FJ and William Magee, who worked for Hilger and Watts in the R for 18 months during the early 1940s.

238 RI MS MM, 25 September 1939, **21**: 83.

239 RI MS MM, 6 November 1939, **21**: 86. The General Secretary of the Ri, Thomas Martin, had been seconded to be Assistant Director of Instrument Production at the Ministry and this doubtless explains the use of the workshop.

240 Civil Defence Incident Reports 645 and 646 in CWAC, CD.

241 RI MS MM, 4 November 1940, **21**: 109.

242 RI MS RI/1/G/G/11.

243 Civil Defence Incident Report 1905 in CWAC, CD.

244 See note 238.

245 RI MS MM, 2 November 1942, **21**: 163.

246 James and Quirke, *op.cit.* (37), p.281.

In 1946, Dale retired, and his successor Eric Rideal undertook the task of reinvigorating the Ri after the war. Quite what impact he and his group (which was quite large) had on the fabric of the laboratories is not clear. Rideal struggled with the antiquated administration of the Ri as well as with the post-war building licensing system put in place by the Ministry of Works. His wife, Margaret, found the social side challenging, not least on account of the increased post-war rationing. The upshot was that Rideal resigned in 1949. Andrade, his replacement, arrived at the start of 1950 with a strong modernising agenda.

Andrade's abrasive manner, combined with the similar style of the Secretary, Alexander Rankine, led them to a protracted wrangle over who ran the Ri. Andrade was forced to resign in mid-1952.[247] During his tenure, little was done to the building, although a great deal was discussed. The compensation paid to Andrade meant that the Ri was not in particularly good financial shape when William Lawrence Bragg took over at the start of 1954. The financial situation, coupled with Bragg's priority to deal with the aftermath of the crisis created by Andrade and Rankine, meant that little was done to the building beyond regular maintenance and emergency repairs to the roof. Bragg's children also needed accommodation. His daughter, Patience, was 19 in 1954 and would live at the Ri while working at the Foreign Office, until her marriage in 1959. The Refectory in No 19 was closed and the upper floors let commercially.

During Bragg's time, it was found that the facade's render was in too dangerous a state to be ignored. Remedial work was undertaken in 1958 under the direction of Guthrie – his last contribution to the Ri before his death later that year. Russell, Orme and Partners were to be appointed architects to the Ri three years later. Research under Bragg returned to X-ray crystallography and the Basement Laboratory next to Faraday's Magnetic Laboratory once again housed X-ray machines. In the 1960s, work turned to the structure of enzymes, which required the first computer to be installed in the Ri. Paid for by the Medical Research Council, the Elliott 803 was installed in the ground-floor laboratory in 1963.[248] This allowed David Chiltern Phillips, Louise Johnson and the rest of the group to make the first determination of the structure of an enzyme, lysozyme.

Towards the end of Bragg's tenure, 18 Albemarle Street was purchased by the Ri.[249] Like No 19, this provided useful rental income, with the lower floors occupied by an art dealer and the floors above in office use. Connections with science were encouraged, with the upper floors let to various scientific organisations and the basement used by the research groups.

The Directorship of George Porter from 1966 can be seen as the culmination of the reform of the administrative structures of the Ri initiated by Bragg. Without the problems that Bragg had had to cope with, Porter launched into a programme to modernise the buildings. He undertook a major fundraising programme based on the centenary of Faraday's death in 1967. The money raised enabled the demolition of the apparatus store and offices on the ground floor, to be replaced by a 100-seat lecture theatre. This was named after the builder Bernard Sunley, whose charitable foundation fund largely paid for the theatre. On the third floor, the laboratories were upgraded, while in the basement the old X-ray crystallography room was turned into a museum devoted entirely to Faraday. Sited next to Faraday's Magnetic Laboratory, this was opened to the public by Her Majesty the Queen in 1973. In the space to the north of this, the thermal storage plant room, which itself had been excavated from the soil beneath the Grand Entrance in 1928–1930, was converted into a purpose-built archive room. In 1975, the lift in No 20 was modernised. This seems to be the time when the area around the lift was infilled, completely blocking out the light from the windows of the staircase of No 20.

For the remaining 10 years of Porter's directorship, little work was carried out to the building. However, in the period following, under John Thomas and Peter Day, various structural concerns needed urgent attention. In the late 1980s, part of the south wall of No 20 and the east wall of No 19 were rebuilt. In 1994, the poor condition of the facade led to its restoration and cleaning, and all of the buildings were completely re-roofed in 1997. With the appointment of Greenfield as Director in 1998, a much longer term and unified view of future development was taken. This led, after competition, to the appointment of Terry Farrell and Partners as architects. They drew up a masterplan whose object was to enable the present and future needs of the Ri, as well as its heritage, to be met within the existing site. Their work began in 2001-02 when, for the first time in 30 years, the third-floor offices and laboratories were refurbished.

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[247] James and Quirke, *op.cit.* (37).

[248] Private communication from Louise Johnson to FJ, 19 November 2002. See also RI MS MM, 4 February 1963, **25**: 37.

[249] On this see Tyrrell, *op.cit.* (39, 2), pp.225-7. The information in the rest of this paragraph is derived from rate books, street directories and electoral registers in CWAC.

3.3.14 2004-2008: The Farrell scheme

The redevelopment between 2004 and 2008 was the first comprehensive refurbishment since the Guthrie scheme of the 1930s. Designed by Terry Farrell and Partners, the scheme involved the re-presentation of existing spaces alongside the creation of an Atrium, visitor facilities and an enhanced display of the collections. The works recontextualised the building interiors, improving accessibility and enhancing inclusivity.

It is appropriate that this work be carefully considered in the context of the lifespan of this BCMP. By Historic England's measure, buildings will not be considered for assessment of their architectural and historic value until they are 30 years old. Exceptions might be made for buildings of exceptional quality and where the fabric is threatened by development.

Terry Farrell was a distinguished architect of international repute. It is important that his contribution to the Ri – commenced after his most well-known work had been completed – be assessed within the context of his wider oeuvre. In its preservation of a historic environment boldly recontextualised for new use, it bears close comparison with projects such as the Grade II listed Comyn Ching Triangle development in Covent Garden, completed in 1985. This scheme transformed a number of semi-derelict historic buildings, introducing a new public space at the heart of the development. Farrell developed a keen interest in urban space and promoted the idea of 'urban living rooms' as communal spaces in the city, places where individuals could coalesce around shared experiences.

Consideration should also be given to the extent to which his as-planned scheme was implemented, as well as the extent to which the as-built scheme survives. With such evidence to hand, an informed view can be taken as to the value of Farrell's work at 20 and 21 Albemarle Street and agreement reached over the degree of respect it deserves. When planning future works, a clear appreciation of Farrell's scheme will permit changes to be made with assuredness, from an informed standpoint.

It is notable that Farrell's scheme includes very few new stylised elements, the chief concern being the reprogramming of the existing building to achieve a series of interconnecting spaces which are open and welcoming. There is a real sense that it is the concept of this work which is more important than the elements of which it is composed. It should also be recognised that Farrell conceived the RI's improved spaces in collaboration with exhibition designer Event, which developed the innovative interactive elements of the display design at the time.

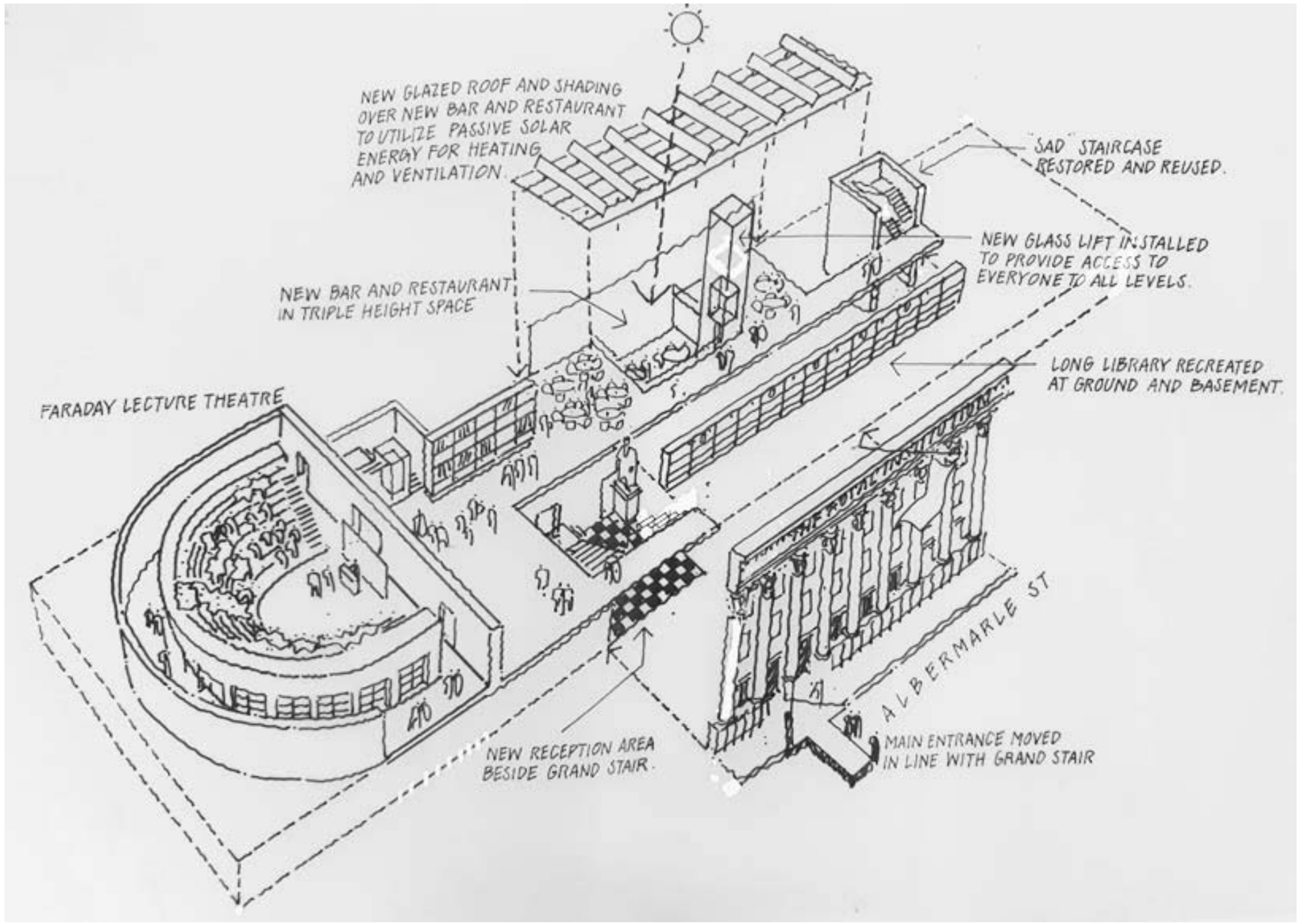

Fig 3.130 Terry Farrell concept sketch, Farrell Centre, Newcastle University

The original scheme comprised a ground-floor restaurant with direct connection to a bar in the space within No 20. The Atrium was effectively surrounded by catering facilities on three sides, with a café also at ground-floor level, to the east of the restaurant and bar. The Museum collection was arranged across three floors, with interactive displays and a changeable gallery space in the base of the Atrium. In this way, a large proportion of the building was opened up to public use around defined circulation routes. Farrell adopted the Grand Staircase as the principal entrance, relegating the Guthrie Entrance Hall to a space for reception facilities. The Dewar plaque was removed from the Grand Staircase and a new arched opening was punched through to the space beyond. In line with the ambition for inclusivity, wooden doors were replaced with glass openings, enhancing the sense of interconnectivity. The rigorous assessment of the scheme's heritage impacts noted the breaching of historic walls as a concern, so it is interesting that the local authority and English Heritage saw fit to consent such work. The improved visitor facilities also included the Young Scientist Centre and the installation of new toilets.

The Atrium and café were the principal additions, inserted in space previously occupied by the demolished Dewar Laboratory. The Atrium now stretched from lower ground up to fourth floor level and incorporated the Guthrie-era first-floor bridge link housing the Red Corridor (now the Lecturer's Corridor). A single glass lift shaft was installed, providing access to all of these floors, passing through the roof of the Atrium at third floor level. It was formed of planar glazing, using proprietary systems that were widely available at the time. A hard white modern render was applied to historic wall surfaces including the internalised facade of No 20, facing into the Atrium. The construction of an additional flight to the Mond stair enabled direct access, at lower ground floor level, to the Atrium.

Glass display cases including proprietary lighting were installed over doors and fitted with elements from the extensive Spottiswood and Dewar's collections of scientific apparatus. These objects, including the spiral feature in the former Café, were displayed for their aesthetic properties, generally having little direct historic significance. While museum-quality display cases were installed to house the principal collection, many of the glass cases over doors and on upper levels do not seal properly, have admitted dust and have lighting that is no longer functioning. The interactive elements of the Atrium gallery are largely no longer functioning and, as a result, Museum visitors are largely confined to the lower ground floor, where the principal exhibits are housed in appropriate atmospheric-controlled display cases. The lower ground floor also houses the Farrell-built archive vault with its reading room and racking system.

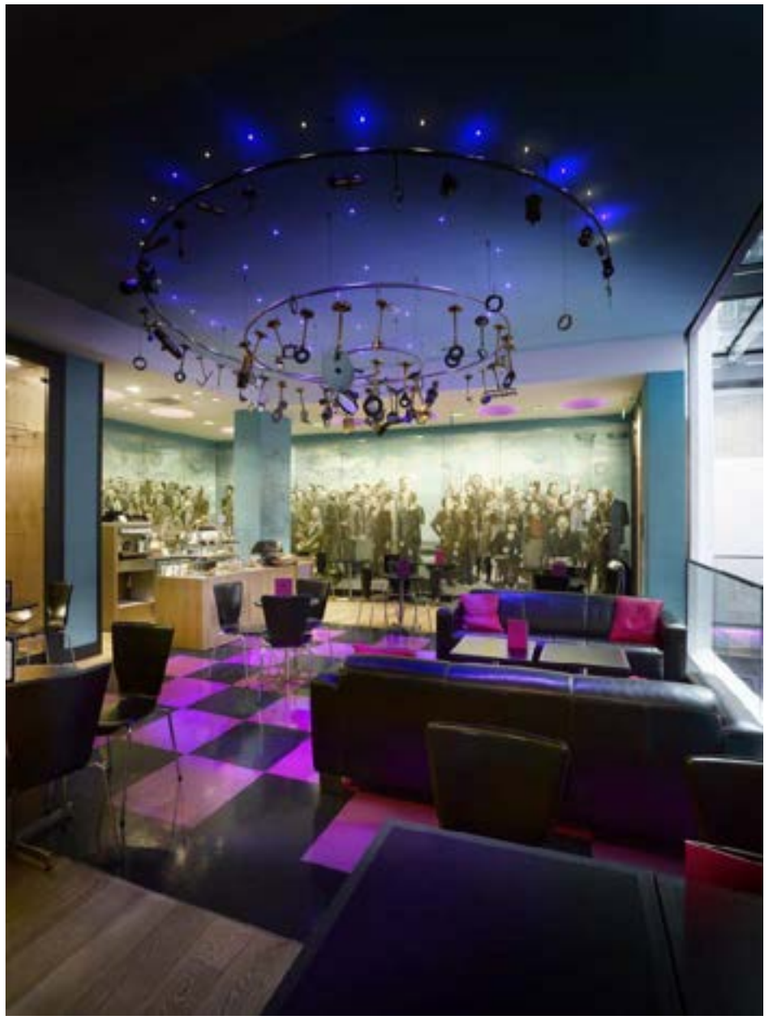

Fig 3.131 Completed Café space within the Atrium. The spiral feature was developed from objects from the Spottiswood Collection. While this space remains, the Café has relocated to lower ground level and the bridge links through to No 20 are now redundant. Photograph 2008

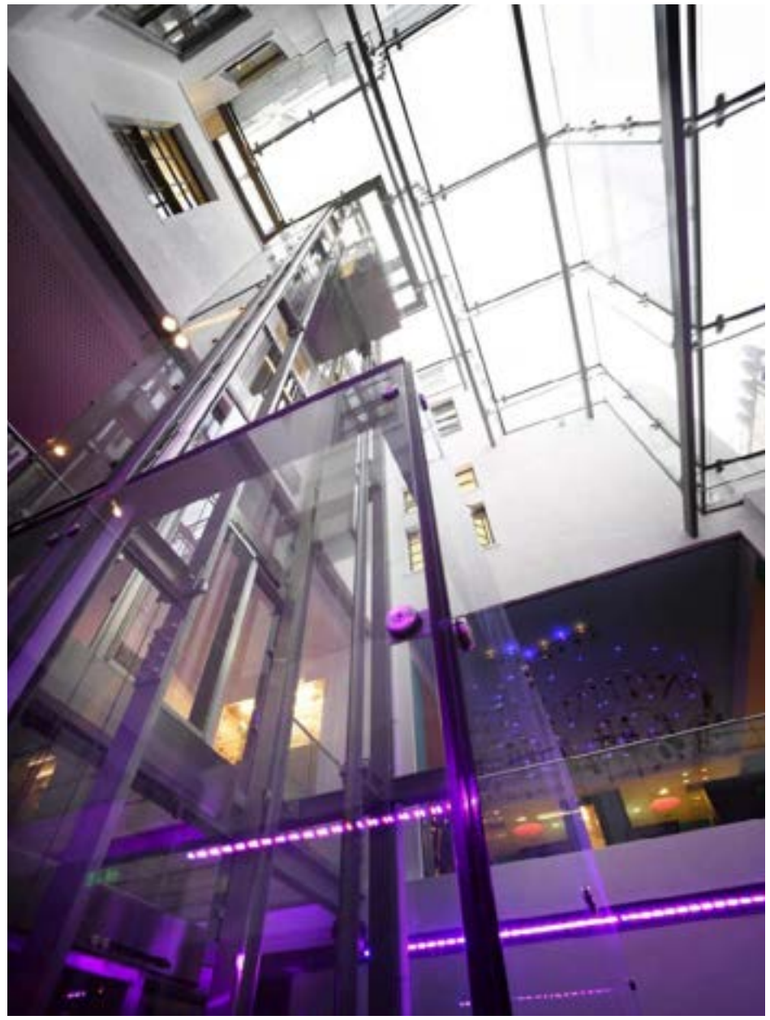

Fig 3.132 The Farrell Atrium occupies previously external space on the upper floors following the demolition of the laboratory space at lower ground level. The glass lift connects to the Guthrie Red Corridor link bridge which projects from the rear of No21 at first-floor level. Photograph 2008

3.3.15 Since 2008

Following the closure of the Restaurant, the space was reappropriated as the Conversation Room, with its Farrell-era decorative scheme retained. The relegation of the Café to the lower ground floor means that there is little now to animate the ground floor. The re-letting of the ground floor of No 20 to Cartier means that the bridge links on either side of the Atrium terminate awkwardly at the party wall. These changes have had the unfortunate effect of isolating the Mond stair in No 20: no longer connected to the ground floor of No 21 as intended, the circular route around the building has been lost. The Mond stair is effectively reduced to serving as a fire escape for the upper floors.

Due to challenges with the contract, some elements of the Farrell scheme were not completed, with other work packages, notably in relation to some of the display cases, executed in a sub-standard manner. The value of the scheme depended in large part on the success of the food and beverage offer: it was quite quickly established that it was not possible to maintain this operation. The best aspects of the scheme have been lost. Many of the fittings, particularly the joinery in the Red Corridor (now Lecturer's Corridor) and the Conversation Room, are relatively low-quality elements that have not fared well. None of this work is of a quality that demands retention or replication to preserve the design intent.

While recognising that it was never completely implemented, and has not been retained as constructed, it is nevertheless important to recognise the ambitions of the Farrell scheme.

Fig 3.133 Rear of the bar in No 20 looking towards Albemarle Street

Fig 3.134 c.1970 photograph of the southern end of No 21's ground-floor Newspaper Room (now Conversation Room). Ri Archival Collection

Fig 3.135 Comparative present-day photograph showing the room's form after its alteration in the Farrell scheme

3.4 Brief biographies of some architects associated with the buildings of the Ri

William Atkinson (c.1773–1839)
Contribution to the Ri buildings: Atkinson was appointed as the Ri's Clerk of the Works in 1804 and in the ensuing six years provided advice on minor alterations that needed to be made. His name disappears from the minutes in 1810.

General background: A pupil of James Wyatt, Atkinson entered the Royal Academy Schools in 1796 and the following year won its Gold Medal. In 1813 he was appointed architect to the Ordnance Office, a post that he retained until 1829. For the Ordnance Office, he designed its office in Pall Mall and various buildings at Woolwich. Most of the other buildings in which he had a design involvement were houses. These included Mulgrave Castle, Breadalbane House (London), Panshanger, Deepdene and additions to Chequers.

Sources: Colvin; *Directory*; DNB.

John Carr (1723–1807)
Contribution to the Ri buildings: On the basis of circumstantial evidence, not least the similarity with some of his other work, the Grand Staircase of No 21, built in 1773-74, has been attributed to Carr. It is possible that parts of the interior of No 20, including the staircase, were also built to Carr's design.

General background: Born in Yorkshire and originally a mason, Carr became one of the leading architects in the north of England in the second half of the 18th century. Belonging to the school of Lord Burlington and William Kent, he later came under the influence of the Adam brothers. Carr was the only provincial member of the London Architects' Club. He was responsible for much of the development of Buxton in the 1780s, including the Crescent, and, throughout his career, for the development of York, where he was twice Lord Mayor. He also worked, among many other places, at Chatsworth, Castle Howard, Hardwick Hall, Harewood House and Wentworth Woodhouse. He also undertook work for his northern clients in the south, for example for Francis Sykes at Basildon Park in Berkshire. His friendship with Mellish was almost certainly a factor in his designing his only building outside England – the Hospital de Santo Antonio do Porto in Oporto.

Sources: DNB; Colvin; Brain Wragg, *The Life and Works of John Carr of York,* edited by Giles Worsley, York, 2000.

Terry Farrell (1938-2025)
Contribution to the Ri buildings: Appointed, after competition, architect to the Ri in 1999, Farrell drew up a masterplan to rationalise the use of the buildings and reinterpret them, taking into account the current needs of the Ri as well as its heritage. The masterplan was intended to reprogramme the building to improve accessibility and enhance inclusivity.

General background: Farrell studied architecture at the Universities of Newcastle and Pennsylvania, and first established a practice with Nicholas Grimshaw in the 1970s – both would go on to found important international practices, albeit separately. This period was a watershed moment for British architecture, when a number of architects emerged amid extensive critical reappraisal of the modernist movement. The architectural critic Charles Jencks coined the term Postmodernism to define the work of architects such as Farrell, who used the lexicon of architectural history in a subversive and thoroughly playful manner unconstrained by modernist convention. Farrell founded Farrell Associates in 1980 and created a number of thoroughly inventive and idiosyncratic designs including the TV-am headquarters in Camden Town. These designs were inspired by contemporary US architecture, in particular the work of Philip Johnson, Michael Graves and Venturi Scott Brown, in turn inspired by the pop art movement and the vernacular of US flatpack architecture and commercial design. Postmodernist architects employed iconographic elements, stylistic motifs and bold graphics with vibrant colours and contemporary materials. This had clear parallels in the product design, graphics and pop culture of the time.

By the mid-1990s, Farrell had delivered some of the largest new buildings in central London, including Alban Gate, Embankment Place and, most famously, the MI6 building at Vauxhall Cross. These buildings share a language of appropriated historical forms and references employed for iconographic effect, but are also important works of urbanism that redefined areas of the city. Farrell is most recognised in the UK for the work of this period. Alongside the brilliance of architects such as Farrell, Piers Gough and James Stirling, Postmodernism was also applied as a superficial styling to some exceptionally poor commercial buildings. The style has consequently become widely reviled, and Farrell proceeded in the late 1990s to design buildings shorn of any Postmodernist references, while expanding his office in the Far East. He focused increasingly on urbanist proposals such as his scheme at Earl's Court and his contribution to the UK Government 2014 Farrell Review of Architecture and the Built Environment. His work consistently retained a clear interest in urban design and people-centric spaces.

Sources: *Who's Who*; RIBA Journal, October 2025.

William Flockhart (1854–1913)
Contribution to the Ri buildings: Flockhart was appointed as Architect to the Ri in 1888. In the mid–1890s he undertook the design work involved in remerging Nos 20 and 21 after a separation of nearly a century and a half. He was also responsible for designing and directing the conversion of much of No 20 for use as the Davy-Faraday Research Laboratory and for building a new laboratory in the basement of No 21.

General background: Flockhart was born in Glasgow and studied at the School of Art there. He then worked in a couple of Glasgow practices before studying art in Paris and London. In 1881, he established his own practice in London where he specialised in domestic architecture and interiors, building both in Scotland and London.

Sources: *Directory*; A. Stuart Gray, *Edwardian Architecture: A Biographical Dictionary*, London, 1985, pp.181-3.

Leonard Rome Guthrie (1880–1958)
Contribution to the Ri buildings: Guthrie took over from William Flockhart in 1912. His major work was the decade-long reconstruction of the interior following the electrical substation explosion in 1927. This included overseeing the demolition and rebuilding of the northern end of the building, its extension eastwards and the reconstruction of the rooms to the south of the Grand Staircase. He retained an active involvement at the Ri until just before his death, the last job he oversaw being the 1958 repairs to the columns of the facade.

General background: Guthrie attended Glasgow High School and the Glasgow School of Art. He was articled to William Leiper before becoming, between 1901 and 1907, head draughtsman for Flockhart. Setting up his own practice in 1907, Guthrie was to go into partnership with Flockhart in 1912, inheriting the Ri work at the death of his partner (also by that stage his father-in-law) in 1913. Before and after the Great War, Guthrie worked with Gertrude Jekyll to lay out the gardens of Townhill Park House near Southampton. Much of his early work was domestic in nature, best exemplified by his design in the late 1930s of Winfield House in Regent's Park which, in 1955, became (and remains) the residence of the US ambassador. From 1925, in partnership with Edmund Wimperis and William Begg Simpson, Guthrie also worked on various blocks of flats, office blocks and public buildings, including transmitting stations (Sutton Coldfield, Brookman's Park and Lisnagarvey) as well as other scientific buildings such as the Mill Hill Observatory.

Key buildings are Fortnum & Mason on Piccadilly (1926) and the Cambridge Theatre in Covent Garden (1929). At the time of his project at the Ri, Guthrie was also working on 63 Harley Street, Winfield House and the interiors of Grosvenor House on Park Lane, the exterior of which was designed by Edwin Lutyens.

Sources: *Directory*; RIBA 'Grey Book'; *Who's Who in Architecture*, 1923, Architectural Review, April 1934; Architects' Journal, 6 March 1929; Building, June 1928.

Hamilton Edward Harwood (1824–1872)
Contribution to the Ri buildings: Harwood was the architect responsible for the building in 1872 of the two-storey laboratory block on the east side of No 21, none of which now survives.

General background: Harwood was articled to Francis Thomson, for whom he undertook various pieces of railway work including the Britannia Bridge across the Menai Strait. From 1850, he worked with Charles Wild on the Crystal Palace and its subsequent rebuilding in Sydenham. In 1856, he was appointed Surveyor of the Admiralty dockyards.

Sources: *Directory*; *Proc.Inst.Civ.Eng*., 1873, **38**: 313–14.

Henry Holland (1745–1806)
Contribution to the Ri buildings: An early member of the Ri, Holland was asked to carry out, with John Soane, the initial survey of No 21. In 1803, he ensured that the new work in the Library was of a satisfactory standard.

General background: The son of a master builder, Holland became one of the leading architects of late 18th-century England. After working initially for his father, he entered into partnership with Lancelot 'Capability' Brown whose architectural practice he took over. He laid out the Cadogan Estate in Chelsea and formed strong connections with the Whig aristocracy, for whom he undertook buildings such as Brooks's Club in London and the Royal Pavilion in Brighton. Other buildings on which he worked included Battersea Bridge, Drury Lane Theatre, East India House, Claremont, Carlton House, Woburn Abbey, Althorp and Broadlands.

Sources: DNB; Colvin.

Owen Jones (1809–1874)
Contribution to the Ri buildings: In the extensive and costly works of alteration undertaken to the Ri's Lecture Theatre in 1870, Jones is recorded as having 'advised on the adornment'.It is considered highly likely that this Victorian design luminary was involved in the commissioning and quite probably the designing of the Japanese wallpaper.

General Background: A pupil of Lewis Vulliamy from 1825-30, Jones was an architect and designer who was to become celebrated for his theories on colour, flat patterning and ornament. He was responsible for the interior decoration and the laying out of exhibits at the Great Exhibition of 1851; in the 1860s was the designer of the Oriental Courts at the South Kensington Museum; and in 1866 he published his hugely influential design sourcebook, *The Grammar of Ornament*. In his quest for a style of his time, one that might break free from mid-Victorian neo-classicism and Gothic Revival, Owen Jones looked for inspiration in historic examples found overseas – in particular in the abstraction of geometry, flat patterning and ornament. Working on a regular basis with Jeffrey & Co., Owen Jones was a noted wallpaper designer.

Sources: *Directory of British Architects 1834–1900*, 1993, p.511

Rodney Melville and Partners
Contribution to the Ri buildings: Appointed in 2002, after competition, to provide conservation advice to the masterplan proposals. The practice carried out a full condition survey and collaborated with the Ri and Farrell in the compilation of the plan, as well as eight editions of Heritage Impact Assessment.

General background: Evolving from the long-established John Osborne Partnership, Rodney Melville and Partners was founded in 1981 to undertake a major programme of work at Warwick Castle. In the first decade of the 21st century, the practice served as Appointed Architects to 20 National Trust properties, including Hardwick Hall and Kedleston Hall. Having served for several years as the head of the National Trust's Architectural Panel, Rodney Melville sat on the Heritage Lottery Fund's Historic Buildings and Land Expert Panel.

George Saunders (1762–1839)
Contribution to the Ri buildings: An early member of the Ri, Saunders was appointed Surveyor in May 1800, in which capacity he oversaw, during the next year and a half or so, the conversion of No 21 into a scientific institution. Thereafter, his absence from all records suggests that he played no role at the Ri.

General background: Saunders was the Middlesex County Surveyor for 28 years. The buildings he worked on included the Theatre Royal (Birmingham), Kenwood House and the British Museum.

Sources: DNB; Colvin.

John Soane (1753–1837)
Contribution to the Ri buildings: An early member of the Ri, Soane was asked to carry out, with his former employee Henry Holland, the initial survey of No 21. He continued to give advice to the Ri and later delivered two courses of lectures on architecture in the Theatre. He also served as a Visitor and a Manager of the Ri.

General background: The son of a bricklayer, Soane joined the office of George Dance in 1768 and three years later entered the Royal Academy Schools. Between 1772 and 1778, he was assistant to Holland. After a spell in Italy and practice in East Anglia, in 1788 he was appointed Surveyor to the Bank of England. This launched Soane's career and various government jobs soon followed. In 1806, he was appointed Professor of Architecture at the Royal Academy. Among the many buildings on which Soane worked are Chelsea Hospital, Dulwich College, the Houses of Parliament and the State Paper Office. However, his lasting memorial must be his excellent library and collections in the Sir John Soane Museum, Lincoln's Inn Fields, which he also designed.

Sources: DNB; Colvin.

James Spiller (d.1829)
Contribution to the Ri buildings: Spiller undertook the survey of No 21 after it had been purchased in 1799. The survey plans are now in the Sir John Soane Museum. He was briefly appointed Surveyor of the Ri in spring 1800, but was soon replaced by George Saunders. Spiller's plans for the Lecture Theatre were rejected in favour of Webster's, but he was responsible for the design of the Basement Laboratory, Repository and Theatre and their connection with the old building.

General background: A pupil of James Wyatt, Spiller began exhibiting at the Royal Academy in about 1780 and at around the same time became Surveyor to the Royal Exchange Insurance Company. He became an associate of John Soane who employed him on various commissions.

Sources: Colvin.

Lewis Vulliamy (1791–1871)

Contribution to the Ri buildings: Although Vulliamy provided architectural advice to the Ri for minor alterations from 1836, his major contribution was in the design of the new Corinthian-columned facade in 1837.

General background: The son of a celebrated clockmaker, Vulliamy studied under Robert Smirke and was a student at the Royal Academy, winning both their silver and gold medals. After a period in Italy, in 1822 he established a considerable practice working on churches and other buildings. His most important work was on Dorchester House (London) and Westonbirt House (Tetbury).

Sources: DNB; Colvin; *Directory.*

Thomas Webster (1773–1844)
Contribution to the Ri buildings: Webster was interested in the provision of education for mechanics and it was probably this that brought him into contact with Count Rumford. The link accounts for his appointment as Clerk of Works in September 1799, a position that he held until 1804. Webster was largely responsible for the initial designs, including the Lecture Theatre, to convert No 21 into a scientific institution. Despite the need for some amendments, these designs were approved and Webster was in day-to-day charge of implementing them.

General background: Born in the Orkneys, Webster studied at the University of Aberdeen and, in 1793, at the Royal Academy Schools. His only other building appears to have been the Observatory in Glasgow, built in 1810. He later became a geologist, and for a time was Secretary of the Geological Society and Keeper of its museum. He was the first Professor of Geology at University College, London.

Sources: DNB; Colvin; *Directory.*

Colvin: Howard Colvin, *A Biographical Dictionary of British Architects, 1600–1840*, 3rd edition, New Haven and London, 1995.
Directory: *Directory of British Architects, 1834–1914*, two volumes, London, 2001.
DNB: *Dictionary of National Biography.*

4. Assessment of significance

4.1 Approach and methodology

'Significance'[1] is a collective term for the sum of all heritage values attached to a place, be it a building, an archeological site or a larger historic area such as a village or landscape. Historic England's *Conservation Principles, Policies and Guidance*[2] sets out a method for thinking systematically and consistently about these values. They can be grouped into four categories:

- **Historical value**. The ways in which past people, events and aspects of life can be connected through a place to the present. This tends to be illustrative or associative. Illustrative value may provide a physical record of technological and design innovations, past ideas and influences. Associative value may provide a record of historic events and notable people.

- **Evidential value**. The potential of a place to yield evidence about past human activity. The physical remains of a heritage asset are a unique source of evidence both below and above ground. Further evidence can be revealed through investigation or alteration works and can validate or transform a written record. The ability to understand evidence is diminished in proportion to the extent of its removal or replacement.

- **Aesthetic value**. The sensory and intellectual stimulation derived from a historic asset through its conscious design, architectural and artistic endeavour, composition, materials, decoration or detailing, and craftsmanship. It may be attributed to a designer or vernacular tradition, specific to a time.

- **Communal value**. The meanings of a place for the people who relate to it, or for whom it figures in their collective experience or memory. Communal value is associated with places that people perceive as a source of identity, distinctiveness, social interaction and coherence. It may relate to an activity associated with the place, rather than its physical fabric.

Each part of the building has been ascribed a value, through which the relative significance of the spaces and fabric can be understood. A set of significance floor plans (**Section 4.2**) indicates by more immediate means the significance of internal spaces. These are based on surveys from 2024 and include 18 and 19 Albemarle Street for reference. The value judgements set out in these plans have been made by James Bailey and Anthony Peers, and have been reviewed by Charlotte New at the Ri. Colours have been used to apply a hierarchy:

Red: exceptional/maximum significance. This includes fabric and features of the highest importance, and which clearly exhibit the Ri's special architectural and historic interest. Any proposals should seek to restore all important features that contribute to the appreciation of the heritage values. Substantial harm should be avoided where possible.

Orange: high significance. This includes fabric and features that contribute to the Ri's special architectural and historic interest. Any proposals should seek to conserve features that contribute to the appreciation of the heritage values where practicable. Adaptation should be undertaken subject to robust justification of need.

Yellow: medium/moderate significance. This includes fabric and features with some connection to the Ri's special architectural and historic interest. Retention should be taken into consideration but could be adapted to suit requirements, subject to appropriate justification that balances heritage with the needs of the Ri.

White: neutral significance. This includes fabric of very limited heritage or other cultural value. The removal or adaptation of structures in this category could enhance heritage values.

Blue: detracts from significance. This includes poorly crafted or ad-hoc structures or features that harm the value of a heritage asset. Wherever practicable, removal should be considered, taking account of setting and opportunities for enhancement.

Features without colour have not been categorised due to access challenges or a lack of information.

The age of the structural fabric has also been provided in colour-annotated floor plans in **Appendix 7.3**.

A key component of the Ri's significance is its associative links with great events and historic figures. Ephemeral by nature, this value is only made redolent by the survival of tangible heritage elements. This 'mutually beneficial' relationship between the different parts of the Ri's heritage should form the backdrop to understanding any aspect of significance highlighted in this chapter.

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[1] https://historicengland.org.uk/advice/constructive-conservation/conservation-principles

[2] In November 2017, Historic England began a public consultation on a new edition of *Conservation Principles*. It proposes aligning the categories of 'heritage value' more closely with the terms used in designation and planning legislation and the National Planning Policy Framework. These are: archaeological interest, which broadly aligns with the category of evidential value as defined above; historic interest, broadly aligning historical and communal values; and architectural and artistic interest, broadly aligning with aesthetic value. However, this guidance had not been formally adopted at the time of preparing this BCMP and as such the Conservation Principles, Policies and Guidance 2008 have been used for this assessment.

4.2 Significance floor plans

Fig 4.1 Lower-ground-floor significance plan

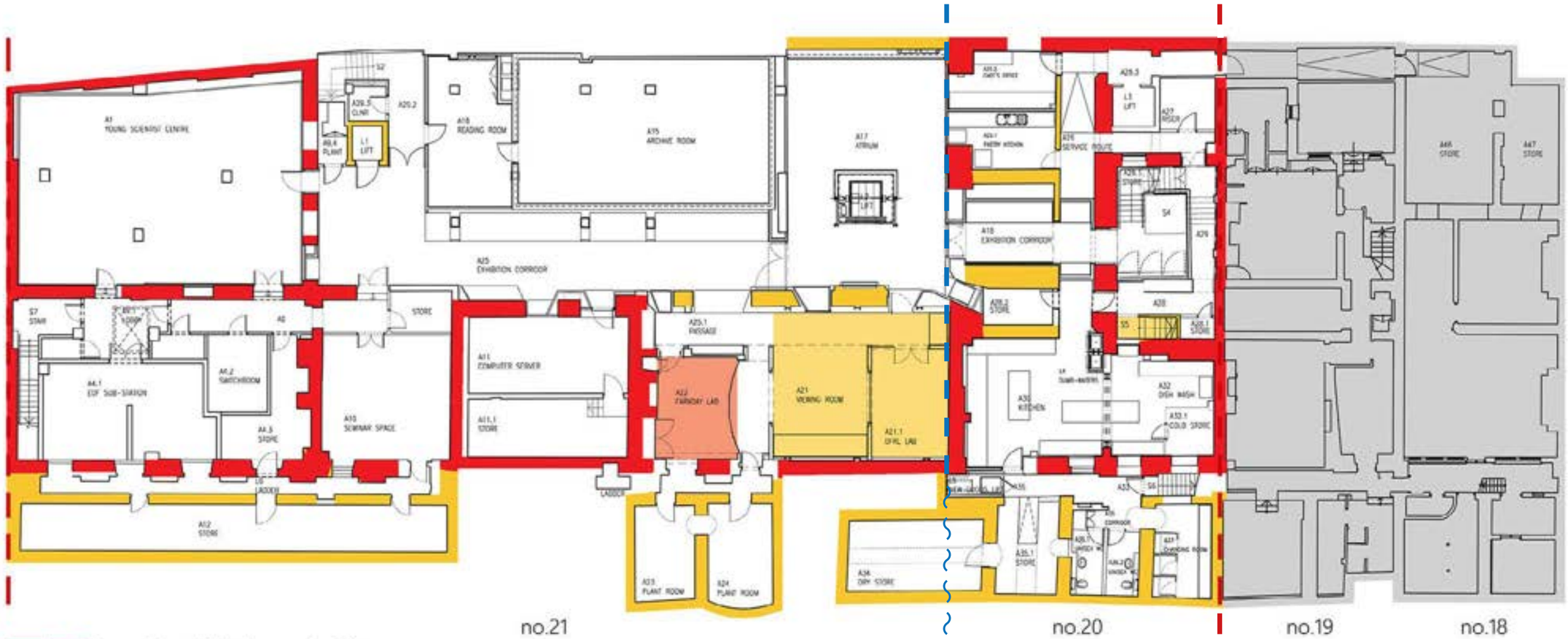


Fig 4.2 Ground-floor significance plan

Exceptional / maximum significance
High significance
Medium / moderate significance
Neutral significance
Detrimental
Not in scope

Fig 4.3 First-floor significance plan

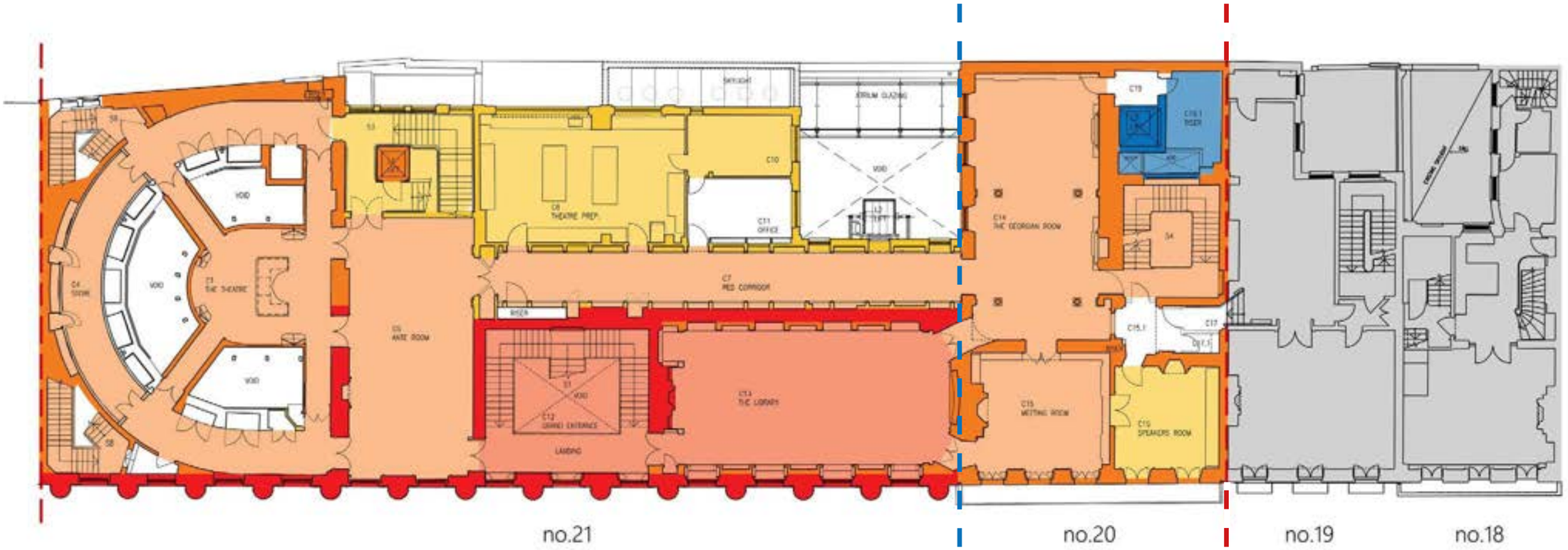
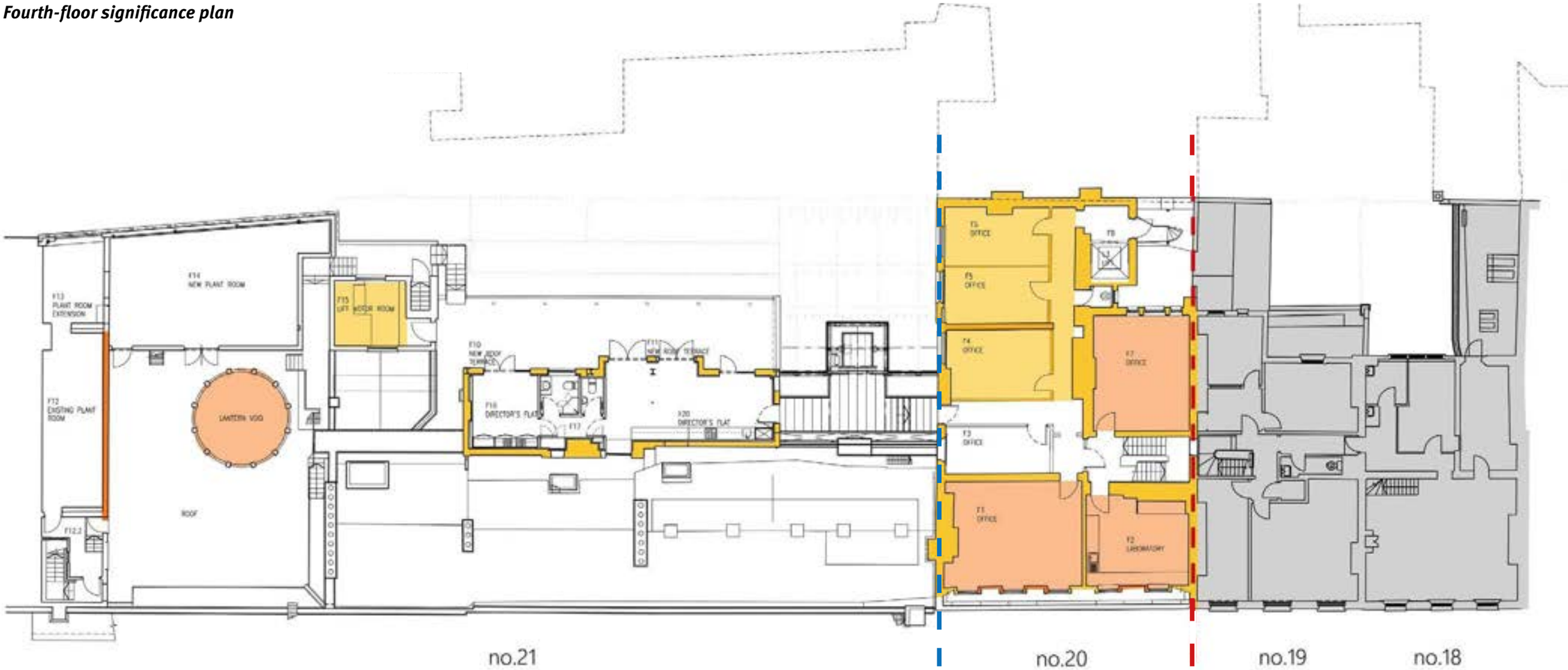


Fig 4.4 Second-floor significance plan

Fig 4.5 Third-floor significance plan

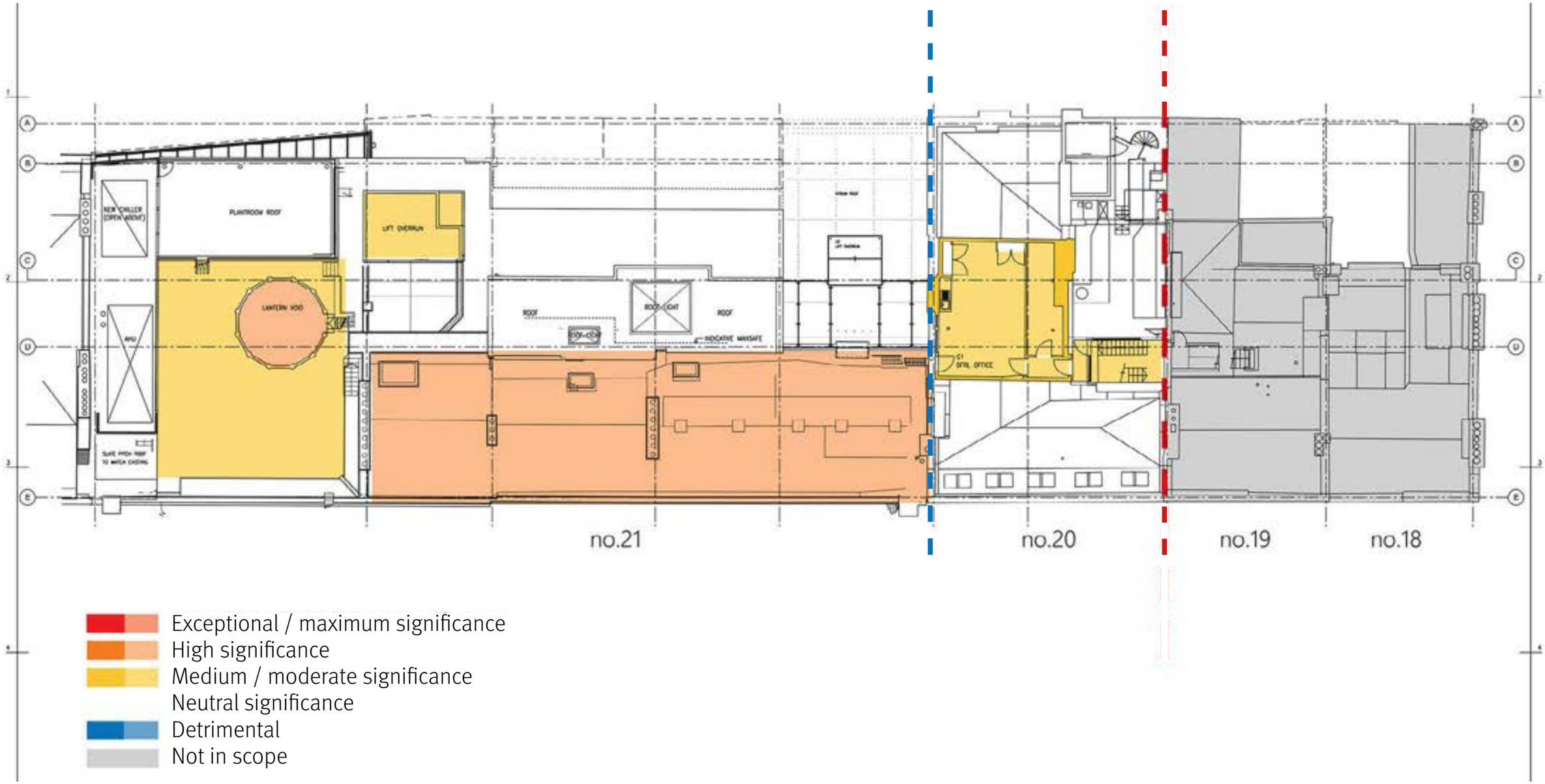
- Exceptional / maximum significance
- High significance
- Medium / moderate significance
- Neutral significance
- Detrimental
- Not in scope

Fig 4.6 Fourth-floor significance plan



Exceptional / maximum significance
High significance
Medium / moderate significance
Neutral significance
Detrimental
Not in scope

Fig 4.7 Fifth-floor significance plan



4.3 Statement of significance

The Ri has been a home to science for over 200 years, empowering new discoveries and technologies, and engaging the public with groundbreaking lectures and events. Since its inception in 1799, the Ri has occupied the same site at 21 Albermarle Street in Mayfair, central London. This building, along with No 20 when also part of the Ri, has evolved to enable inclusivity and promote science to as wide an audience as possible. Through it all, these buildings have provided inspiration, presenting new ideas and knowledge within the context of a place deeply connected to the foundations of the modern world.

The buildings have domestic origins as two early 18th-century town houses and were occupied for nearly a century prior to the founding of the Institution in 1799. These early buildings survive within a larger development undertaken in the 1930s, which involved rebuilding the Theatre and much of the rear of the building. Works have been carried out by a number of important designers over the course of the Ri's existence, notably John Carr (attribution to be confirmed), Lewis Vulliamy and Terry Farrell. The long history of adaptation has prioritised spaces for scientific research, often at the expense of significant spaces from earlier phases.

The relative significance of the spaces and building fabric is informed by **Section 3**, as well as the floor plans in **Section 4.2** and **Section 7**. The Grand Staircase and the Vulliamy Facade contain the most exceptionally significant fabric and both survive largely complete and unaltered. The continued use of the Theatre, meanwhile, is especially important. While not being the original, the Theatre is informed closely by its predecessor. It enables lectures to be viewed in person by large audiences in an intimate setting. This space has huge international significance through television broadcasts and live streaming of events.

In addition to its buildings, the Ri provides the setting for a collection of fixtures and fittings including works of art, sculpture, furnishings and books that contribute to the significance of a number of the interior spaces. This includes the Faraday Museum collection (accredited with Arts Council England) and archives, which contain items that connect directly to the important work undertaken by Members, employees and visiting lecturers.

4.4 Historical value

4.4.1 Associative value

Personalities
During the 19th century, figures such as Thomas Young, Humphry Davy, William Thomas Brande, Michael Faraday, John Tyndall and James Dewar dominated the scientific activities of the Ri, mostly in the capacity of their professorial and directorial roles. In the 20th century, the key figures were Dewar, William Henry Bragg, Henry Dale, Eric Rideal, Edward Andrade, William Lawrence Bragg, George Porter, John Meurig Thomas, David Phillips, Peter Day, Richard Catlow and Susan Greenfield.

The Nobel Prize has been awarded to 15 professors or researchers at the Ri between 1904 and 2012. These have included John William Strutt (3rd Lord Rayleigh) (1904), Ernest Rutherford (1908), William Henry Bragg and William Lawrence Bragg (1915), Dorothy Hodgkin (1964) and John Gurdon (2012). Established in 1901, the Nobel Prize was not available to figures such as Davy or Faraday. Their work was recognised contemporaneously by the award of the Copley Medal of the Royal Society or, in the case of Faraday, by election as one of the eight foreign associates of the *Académie des Sciences*.

Key events
A number of crucial moments in scientific history are inextricably linked to the Ri, either through work undertaken on site or by those associated with the building. These include the following key dates:

1821 Faraday discovers electromagnetic rotations
1825 Faraday discovers the chemical benzene
1825 Faraday is the first to liquify a gas, in this case, chlorine
1831 Faraday discovers electromagnetic induction
1836 Faraday invents the Faraday Cage
1839 Faraday announces the existence of photography
1845 Faraday develops the field theory of electromagnetism
1892 James Dewar invents the Dewar Flask or vacuum flask
1892 Eadweard Muybridge demonstrates his new Zoopraxiscope
1897 JJ Thomson announced the existence of the fundamental particle
1898 Dewar becomes the first person to liquefy hydrogen
1925 Kathleen Lonsdale identifies the structure of benzene
1965 David Philips and Louise Johnson determine the structure of lysozyme.

Applied scientific work
One of Faraday's great insights was his appreciation that, outside the laboratory, many other factors contribute to the success of applying scientific knowledge. The role of applied science has been a major theme throughout the Ri's history, as shown by such work as:

- Davy's invention of the miners' safety lamp and his work for the Board of Agriculture to use chemistry to improve farm productivity
- Brande's improvement of tanning processes
- Faraday's analyses of gunpowder for the East India Company and his role as scientific adviser to various government departments, including the Admiralty, Home Office and Ordnance Office
- The application of Faraday's field theory to long-distance underwater telegraph signalling, which was in effect across the Atlantic by the mid-1850s
- William Henry Bragg's work formulating government science policy at the beginning of the Second World War, especially with the Scientific Advisory Committee of the War Cabinet. He was also an active member of the Academic Assistance Council established in the 1930s to help Jewish academics flee Germany and later Austria
- The formulation of national policy for the development of UK high-performance computing, through the inter-research Council High Performance Computing strategy committee, chaired by Richard Catlow.

Lecture programmes
Since 1799, lectures have been given by a large number of major scientists, as well as non-scientists such as Samuel Taylor Coleridge and John Constable.

Lecture series have taken various forms, including:

- Friday Evening Discourses. Founded by Faraday in 1825, these are formal lectures that continue to this day. Some very important scientific discoveries have been announced at Discourses: for instance, the development of photography (1839), the beginnings of field theory (1846) and the existence of the fundamental particle, later called the electron (1897)

- Christmas Lectures for young people. Also founded by Faraday in 1825, they are now televised over the Christmas holiday each year
- Schools Lectures. Programme of talks for young people established by William Lawrence Bragg in the mid-1950s.

The Ri now offers a wide range of events and experiences for youth and public audiences, including livestreamed and online events.

4.4.2 Illustrative value

Fabric
Rebuilt in the late 1920s to designs by Leonard Rome Guthrie (**Section 3.3 12**), the Theatre is the stage on which many great scientists, such as the Braggs and Porter, have performed. It was also the location for events such as the tercentenary of Isaac Newton's birth and the first television transmission using optical fibre cable.

Guthrie's appreciation of the significance of the old Theatre led him to re-use some of the historic fabric and to adopt the layout of the original Lecture Theatre for his design. His diligence has ensured that those using the new Theatre experience something of the spatial qualities and atmosphere of the room that played host to the likes of Davy and Faraday, including the innovative lantern lift reinstated as part of the cupola and dome assembly.

The highly decorative and impressive 18-century Grand Staircase, although never a space in which great events took place, derives associative significance from the fact that its extant fabric has been witnessed by all the eminent people who have worked in and visited the Ri.

Similarly, the associative significance of Faraday's Magnetic Laboratory cannot be overstated, even though the 1936 dismantling and reconstruction resulted in the extensive loss of authentic fabric. Although it cannot be categorically proven, this room, which houses some of Faraday's furniture and scientific apparatus, is almost certainly where he discovered the magneto-optical effect and diamagnetism (both 1845) and undertook his colloidal work (1850s).

The space occupied by the Atrium at lower ground level was formerly the 1896 Dewar Laboratory, where the liquefaction of hydrogen was achieved in 1898. The archive store is on the site of the Basement Laboratory, used extensively by Davy and Faraday. While many of the contents of these spaces have survived, the rooms themselves have been lost, making the Magnetic Laboratory an important survivor.

Since 1799, the rooms on the second floor of No 21 have served as the residence for the Ri's leading figure at any given time. Fabric and paint analysis undertaken to inform the Conservation Plan have helped to clarify that, in 1936, as part of Guthrie's structural works, the Director's Apartment was stripped out and reconstructed. However, as Guthrie made only minor changes to the layout, the rooms occupied by the Faradays and Dewars and their families survive in their structural and spatial form. Further associative significance is derived from the fact that, since 1936, Directors such as the Braggs, Porter and Greenfield have lived in these Guthrie-designed spaces.

As illustrated in the history of the buildings (**Section 3.3**), the impetus for building alterations has invariably come from those heading up the Institution. The extant fabric can therefore be read as the physical embodiment of their endeavours. The 1920s and 30s schemes, for example, reveal the aspirations of William Henry Bragg and the Building Committee of the time. These spaces survive in remarkably unaltered form, with the exception of those remodelled under the Terry Farrell scheme of 2008, such as the former Bernard Sunley Theatre and the Conversation Room.

The associative significance of these interiors (which include the Roundel Room, the Ante-Room, the Library etc) is also enhanced by the events, achievements and personalities they have hosted over the past century. The 1930s roundels in the Roundel Room frieze were commissioned to trigger appreciation of the Ri's history depicting the Ri's most celebrated discoveries. By association, these devices continue to serve as reminders of the place's role in science.

The scheme implemented by Farrell in 2006-08 remodelled the rear of the building to provide the glass Atrium, and extended to a number of adjacent rooms at low level, including a new glazed opening and the removal of the Dewar plaque from the Grand Staircase to the lower ground floor opposite the glass lift. The Conversation Room's 1930s furnishings were removed and the space remodelled to provide a short-lived restaurant. These changes were themselves compromised by the closure of the bar in No 20 and the reinstatement of the Cartier shop at ground-floor level.

The collections
The collections comprise the Faraday Museum collection, the archives and items displayed throughout the public areas. Illustrative links are directly conveyed by iconographical material such as portraits, scientific apparatus and instruments, and other physical evidence of discoveries and events. The different ways in which the collections have been displayed also lends associative significance. For example, the Ambulatory and the Faraday Museum displays reflected the ideologies of William Henry Bragg (1920s and 30s) and George Porter (late 1960s and early 1970s). Similarly, the basement exhibits in the Farrell scheme reflected changing attitudes to presentation and the need to adopt inclusive design, with accessible spaces and clearly explained materials.

The archives
The archives are of international significance, attracting readers from across the world. The discoveries made by major figures are recorded in laboratory journals, such as the Faraday notebooks, which were inscribed into the Unesco Memory of the World archive in 2016. Correspondence by many major figures relate the science undertaken in the Ri to the broader scientific community and society in general. These papers, as well as those relating to the Institution's administration, allow readers to understand the role of the Ri within the development of science. Further significance is derived from the fact that the vast majority of papers were generated in the building in which they are retained.

Books
The collection of historic books and periodicals is generally of local significance and is best seen as supporting the work of the archives. In most cases, the books held by the Ri can be found in many other libraries in London. There are, of course, exceptions, including some pamphlets and periodicals.

Many volumes of the periodicals include manuscript annotations by notable figures, especially Faraday. This adds significance, as does the fact that many of the books were owned by famous people closely connected with the Ri.

Iconographical collections
Most of the figures whose images are on public display have a close connection with the Ri and therefore help to establish the institutional identity. Most portraits were commissioned by Members to honour retiring professors and officers, and several were official Institutional commissions (for instance, Terence Cuneo's group portrait of William Lawrence Bragg delivering a Christmas Lecture in 1961, Fig 3.41, **page 23**).

The key significance of the iconographical collections lies in the fact that the pictures and sculptures were commissioned by, or for, key figures who have inhabited the building during the past two centuries, and have been retained here. Faraday was responsible

for commissioning a number of portraits by Henry William Pickersgill, for example, and Dewar commissioned portraits of figures connected with the Ri who were not previously represented in the collection.

Some of the images, especially those by Harriet Moore and Katharine M Reynolds, are rare and highly significant in that they illustrate the development of laboratory spaces during the 19th century and beyond. Indeed, one of Moore's images is used ubiquitously to illustrate what a chemical laboratory in the 19th century looked like.

Scientific apparatus
Research at the Ri has always been underpinned by access to a well-equipped laboratory. The apparatus required for its pioneering activities was either made on the premises or occasionally commissioned from a scientific instrument maker, and the Ri is fortunate in retaining some of the most important historic examples.

Demonstration equipment
The instruments collection is clearly distinguished from the apparatus collection both by function and provenance. The items in the instruments collection were made specifically for demonstration and lecture use rather than research, and most were presented to the Ri on the occasion of its centenary in 1899 by the Spottiswoode family, whose wealth stemmed from their printing company. Such purpose and provenance ensured that the collection comprises only pieces of the finest craftsmanship and materials – brass and glass.

Historic furniture
In terms of number of objects, this is not one of the largest elements of the collections. However, it does contain a number of significant items. These include pieces associated with Faraday, such as a sideboard, print/map cabinet and washstand that he used both at the Ri and in his grace and favour residence at Hampton Court. In addition, there are a number of pieces of institutional furniture (board tables, library tables, chairs etc), which were certainly in the possession of the Ri by the late 19th century and possibly much earlier, as well as some that had been in the laboratories when they were installed in 1896. Apart from the tables in the Magnetic Laboratory, all historic furniture is now housed in an offsite store.

4.5 Evidential value

The potential for these buildings to yield evidence from their past can be understood by considering both the surviving fabric and the collections, which retain considerable evidence, even where the associated fabric has been lost or heavily modified. Fabric analysis, paint analysis and documentary research have enabled an informed assessment of each key internal space.

Important scientific achievements are recorded through individual artefacts and written records. However, it is rare for the laboratory spaces to survive in their original condition, as the continual evolution of the research undertaken required updated facilities. The requirements to adapt the building for the purposes of communication to changing audiences have been encapsulated in comprehensive refurbishments in the 1930s and 2000s, which have represented the building at the expense of the loss of evidential significance.

The 18th-century town houses retain the legibility of their plans and early original fabric despite their incorporation into the later building programmes. The surviving fabric in these parts of the site has the potential to reveal more information about previous uses and the evolution of the buildings. In particular, the early history of No 20, where much of the fabric survives, is not clearly documented. Various accounts, paintings, plans, drawings and engravings offer huge potential to further our understanding, particularly concerning changes after 1799.

18th-century fabric
A very high percentage of the structural fabric of No 20 is of early 18th-century build, before it was purchased for use by the Ri. In spite of the major alterations undertaken in the early 19th century, the 1870s, 1890s and 1920s-30s, much of No 21's mid 18th-century structural fabric also survives.

Although it is invariably now hidden by subsequent surface finishes, the 18th-century structural walling is of significance, not least because it has ensured the survival of the internal layout of the town houses.

Illustrations provide documentary evidence of the quality of 18th-century interiors such as the Library (see Rowlandson's aquatint, Fig 3.67, **page 34**). The frequency and degree of subsequent alterations has meant that few such interiors have survived. The extent of loss serves to heighten the significance of those elements that remain. Among the significant survivals are the stair of No 20 and the window shutters of the Georgian Room, the Writing Room and the former Director's Apartment.

The 1799 conversion
Any surviving fabric from the scheme undertaken at the turn of the 19th century is tangible evidence of the first endeavours by the fledgling Ri to create a building fit for the promotion of science. Although several sets of historic plans provide evidence of the form of No 21 at the completion of the Webster works in 1803, subsequent improvements have involved widespread removal or covering over of the early 19th-century arrangement. The 1872 construction of laboratories at the rear of the site put paid to Webster's single-storey laboratories, while Guthrie's scheme in the late 1920s brought about the complete removal of the original Theatre and floors beneath.

There do survive remnants of the Webster scheme, and these are significant. First are the rooms at third-floor level, above the Grand Staircase and Library. Although these spaces have long since lost their historic surface finishes, the layout of the corridor and rooms survives. Built as bedrooms, these spaces also retain their primary fenestration and roof coverings. The latter even features some fine, and needless to say significant, early chimney pots.

Victorian elements
Compared to the works of the other key periods, the site's various Victorian additions are of lesser architectural interest.

The upper portion of the stair in No 20 was built in the late 1830s. This space derives significance from the contribution it makes (through 'heightening') to the appeal of the 18th-century stairwell; the architectural appeal of its fenestration and decorative ceiling plasterwork; and the manner in which the balustrading has been treated. It also provides important physical evidence for how No 20 was used in the mid-19th century.

At first-floor level, the elaborate and distinctive detailing of the plasterwork, the bookcases and columns found variously in the Georgian Room, the Writing Room and the Speakers Room, survive as evidence of the Victorian alterations before and immediately after No 20 was bought by Ludwig Mond.

The remaining historic fabric of the Dewar Laboratory (room A17) has been lost. All that is known to survive is some tiling behind some of the lower-ground-floor display cabinets. This could be interesting tangible evidence of the Ri's late 19th-century activities (see Section 3.3.9, **page 47**) and is of some architectural interest.

The programmes of the 1920s and 1930s
The fabric of the inter-war programmes of work (supported by evidence found in archival documents) provides a valuable insight into the capabilities and character of Leonard Rome Guthrie, the

architect, and the aspirations and requirements of the Ri, led at that time by William Henry Bragg.

The extensive programmes of the late 1920s and mid-1930s were both prompted by safety concerns: the first by the explosion of 1927; and the second by evidence of structural movement in the rooms to the south of the Grand Staircase. Both schemes incorporated new means of structural support and were thorough in their extent, with interiors stripped out from both the mid-18th century and Webster periods.

This thoroughness was motivated by a desire to improve facilities. Neither a modernist nor a philistine, Guthrie appears to have sought to make good the evident defects of the historic building and build upon the Georgian foundations by working in a complementary idiom. In addition to his use of the Adamesque style, Guthrie also appears to have saved elements of historic fabric for re-use. Charles Reed Peers, the Ministry of Works' Chief Inspector of Ancient Monuments, even advised on the proposals. The photographic record of Faraday's Laboratory before and after the 1936 works (Figs 3.112 and 3.113, **page 61**) further demonstrates Guthrie and the Building Committee's interest in preserving spaces perceived to be of significance.

To regard Guthrie's programmes of works with disdain would be to do them a major injustice. If not to everybody's taste, the ornate decoration of the formal spaces – the Roundel Room, the Ante-Room, the Theatre Ambulatory, the Lecturers' Corridor, the Library and the Conversation Room – is highly distinctive and of an impressive quality. Elements such as the Roundel Room's frieze, which specifically relates to past scientific work at the Ri, also demonstrate this distinctive appeal.

Guthrie's achievements as an architect have tended to be overshadowed by contemporaries who worked in the more avant-garde art deco and modernist styles. In time, as the attitudes against inter-war neo-classicism change, Guthrie's output will gain the appreciation and respect it rightfully deserves. The formal interiors are among the best surviving examples of his oeuvre – compared to many others, such as those at Winfield House, they are in remarkably unaltered form.

The Grand Staircase, the Theatre, Faraday's Magnetic Laboratory and the Director's Apartment demonstrate four different approaches taken by Guthrie. These can be summarised as follows:

- Marrying new work with old. In the Grand Staircase, he altered the fireplace location and introduced new elements such as the floor and the northern entrance doors
- A new interior respecting that which had gone before. The new Theatre was designed as closely as possible to the original arrangement and incorporating key elements of historic fabric from it, including the cupola, with its winding gear installed under a copper roof dome
- Careful dismantling and reconstruction. He carefully dismantled and, upon completion of the introduction of the structural support work, reconstructed Faraday's Magnetic Laboratory
- Aggrandisement in an historic idiom. Partially stripped out as part of the 1936 structural stabilisation works, Guthrie subtly reworked the Director's Apartment, introducing elements such as elaborate cornicing and panelling to enhance the grandeur.

Where other lesser architects adopting the above approaches might have caused confusion or compromise, Guthrie's capabilities as a forthright designer produced, in each instance, interiors of conviction.

The choice of Guthrie as an architect, the style in which he worked and the manner in which spaces such as those cited above were treated provides an interesting insight into inter-war attitudes at the Ri towards the heritage of 20 and 21 Albemarle Street.

Although of lesser architectural significance, the five-storey rear range is of interest in that it was a central element of the 1928-30 scheme. Of architectural merit are the spaces at ground- and first-floor levels, with their distinctive windows and atmospheric rooms, and the 'polite' rooms used as an extension to the Director's Apartment.

The Farrell scheme

The scheme by Terry Farrell and Partners, implemented between 2004 and 2008, is described in **Section 3.7.14**. This comprised a re-presentation of the entire building designed to promote inclusive access, in parallel with an ambition to achieve commercial uses of the ground floor. Of the relatively few new spaces, the most notable were the Atrium, the basement exhibition spaces and the L'Oréal Young Scientist Centre. Interventions into existing spaces included the reinterpretation of the Conversation Room and the Grand Staircase. Many changes made as part of this project have been undermined, either by not being implemented or by the subsequent closure of integral functions, such as the Café and Restaurant.

The significance of this work is consequently concentrated in the concept of how the spaces have been reinterpreted and how circulation and vertical access was improved, rather than necessarily the fabric built to enable this. The architectural interventions are not redolent of Farrell's wider body of work.

4.6 Aesthetic value

Given the substantial cost associated with this and considering it generated no new internal space, the Vulliamy Facade demonstrates an awareness among the scientists of the day of the value of design and its role in presenting and communicating the aims of their Institution. It is an imposing intervention in a relatively narrow street, which is clearly intended to brand the existing town houses with an identity becoming of an important organisation.

Architectural ambition extends to many interventions made at different times. The following comprise some of the principal areas of aesthetic significance.

The Theatre and the work of Guthrie

Guthrie's approach to the 1928-39 programme ensured that several aspects of the early 19th-century Theatre survived. His reverential approach to the design of the new Theatre and adjacent spaces is demonstrated by:

- The survival of the primary structural walls, which determined its internal dimensions
- The survival of the spatial qualities of the original Theatre (which Guthrie took pains to emulate)
- A layout markedly similar to Webster's design including the dome and cupola, which are clearly based on the original
- The survival of elements such as the wallpaper and doors, known to have been reused from the original Theatre.

In addition, Guthrie's plasterwork designs directly reference the Grand Staircase. This is particularly evident in the Roundel Room, which he created but also in the reinterpretation of earlier spaces such as the Library and the Ante-Room.

The Vulliamy Facade

The facade derives significance from the fact that it was designed by Lewis Vulliamy, an architect of note. A late and impressive example of post-Napoleonic Roman revival classicism, it provides a grand and imposing street frontage and makes a positive contribution to the architectural and visual appeal of Albemarle Street. It also provides rare tangible evidence of the ambitions and

tastes of Faraday, who is known to have been instrumental in the commissioning of the project.

Grand Staircase
The Grand Staircase is a survival of unparalleled architectural significance. The stair derives significance from:

- The impressive quality of the architecture, which was probably designed by John Carr, one of the nation's best respected 18-century architects (**Section 3.3.6**)
- The extent of the survival of the 1770s arrangement (incorporating the stair and balustrading)
- The fine quality of the decorative plaster and metalwork
- The associative links with eminent people.

Farrell scheme
It is reasonable to ascribe some cultural value to the Farrell elements of the building. Although not featured in the description for the existing Grade I listing, they will be afforded statutory protection through the building's status. Any update to the listing should provide clarity on their value.

It is unfortunate that there were not sufficient funds to permit Farrell's vision for this building to be fully realised. It is also to be regretted that some of the work was poorly executed and that the failure of the catering enterprise (and the subsequent reletting of the ground floor of No 20 to Cartier) resulted in the loss of the essence of the scheme.

However, it is the thinking behind the scheme, rather the installed fabric itself, that is the most interesting aspect, and the significance of this in large part survives in the documentary evidence of the design planning. The intention was to reframe the public areas as a salon for science, aligning with the Ri's ambition to achieve a self-sustaining future for the building, while promoting science to as wide an audience as possible.

A number of Farrell projects have been listed, notably the Grade I Cosmic House (designed with Charles Jencks), the Grade II Comyn Ching Triangle and the Grade II Henley Royal Regatta Headquarters. While this demonstrates the level of appreciation for Farrell's work, the circumstances around each listing differs, being influenced by consideration of design quality and condition. Numerous other Farrell-designed buildings, including Alban Gate and the TV-am Building, have been turned down for listing, enabling significant changes to be made to them.

4.7 Communal value

Value that relates to the significance of the Institution but not directly to the building are not part of this assessment. It should be noted however, that the Ri's outreach activities engaged 100,000 young people across the UK in 2024, most of them at schools in deprived areas. Most activities were delivered at no cost to the schools involved. During the academic year 2024/25, 110 Mathematical Masterclasses series were run across the UK, reaching 3,624 pupils. Many L'Oréal Young Scientist and Ri Masterclass activities are provided as workshops during school holidays.

Probably the most well-known of the Ri's activities are the Christmas Lectures, which are broadcast nationally on BBC television. These prominently feature the historic Theatre, grounding them within a dedicated architectural space. The precedent for the use of this venue has been established over two centuries, in both the current Theatre and its predecessor.

The Public Lectures offer the opportunity to listen to some of the great scientists of today. Over 35,000 people attended a live talk or show in the Theatre or online in 2024. The 'livestream from the Ri theatre' is an important part of the programme, granting access throughout the world. The Ri has almost 1.6 million subscribers to its YouTube channel, and online videos have been viewed over 46 million times in 205 countries.

The Ri offers a unique experience to the visitor, whether children or adults, because of its location and its accrued heritage. Teacher focus groups have indicated that the history and location of the Ri are very important, and report that students enjoy the experience of visiting the building. Visitors can explore the history of the Ri in greater depth at the Faraday Museum.

5. Defining issues

Approach and methodology

Section 5 sets out nine defining issues for the Ri. These comprise:

5.1 Management
5.2 Understanding significance
5.3 Physical condition
5.4 Previous alterations
5.5 Collections
5.6 External factors and statutory approvals
5.7 Fire protection
5.8 Access improvements
5.9 Scientific research

Each issue is defined with the prefix 'I' and contains a series of subpoints starting from 'A'. These issues are cross-referenced to the management recommendations set out in **Section 6**.

The defining issues have been developed following extensive consultation with the Ri stakeholders and members of the Steering Group and the Footprint Project Board.

5.1 Management

I.5.1A
The management of the building involves balancing the competing interests of different tenants and user groups. Resources need to be allocated to the public programme and collections management, access and interpretation in a manner that is neither harmful to the building, nor undermines how the building is presented.

I.5.1B
Efficient use of the building maximises commercial potential. There is a symbiotic relationship between appropriate use of a building and conservation that can consequently derive funding from the investment available. It is evident that there is inefficient use of some areas of No 20, in particular, the Entrance, Mond stair and ground-floor room facing the street.

I.5.1C
It is important to recognise the changes occurring since the 2004-08 Terry Farrell scheme was implemented. The reinstatement of Cartier on the ground floor of No 20 has divided circulation routes and redefined how the lower levels of the Atrium are occupied. This therefore needs to be reconsidered as the space is neither what was designed nor has a new plan been implemented.

I.5.1D
The Ri lets a substantial amount of internal space to tenants with similar interests, notably the London Institute for Mathematical Sciences and University College London. Tenants have responsibility for decoration and internal fit-out, which needs to be coordinated with the wider plans for the building and with respect to the BCMP.

I.5.1E
In-house catering facilities were introduced as part of the Farrell scheme. However, the subsequent removal of the restaurant and bar combined with the relocation of the Café in the basement have reduced the extent of provision, which is largely focused on venue hire. The Café has a small number of seats and no presence externally but is used extensively by visitors, who benefit from the free wifi and access to toilets. This encourages people to access the building and to meet others there.

School groups use the breakout room for lunches. However, the space is limited and the facilities could be improved.

5.2 Understanding significance

I.5.2A
No 20 is an independently listed building with a history of nearly 200 years prior to its incorporation into the Ri. Its significance is hampered through the relegation of its entrance to a fire exit, through the separate leasing of the ground floor, and through the lack of daylight afforded to its main staircase.

The history of this building suggests that it was a significant early town house, configured as a corner house with a second facade, now facing the Atrium, that was designed to address a square that was not constructed. It is a building with important historical associations, but is neither well-presented nor well-documented.

I.5.2B
Recent cataloguing and the research work undertaken in relation to this plan have greatly enhanced the understanding of the historical development. The archive collections are so extensive that there is inevitably likely to be more that could be undertaken in the future. Further cataloguing and analysis is required to build upon existing understanding.

I.5.2C
The process of researching this document has enabled much to be clarified about the building's evolution. However, there remain question marks over the history of some parts of the site. These areas of uncertainty include the manner in which the No 20 stair has evolved and the original appearance of the facades to No 20.

I.5.2D
The Theatre is intrinsic to the Ri and has a high corresponding significance despite the fact that this is not the original Theatre. The current Theatre derives significance from nearly a century of use and from incorporating elements and design features from the earlier structure.

I.5.2E
The work of Leonard Rome Guthrie comprises both extensions and representation of historic spaces. It is all-pervasive and achieved a representation of the building, which very largely survives until this day. The current building is consequently very largely the building that Guthrie intended us to see. This imbues the public areas with considerable significance, even though they are 20th-century works and do not reflect the aesthetic styles of their period. This work did not feature prominently in the Conservation Plan of 2003. However, it has been necessary for it to be re-evaluated and understood in context or evaluated on its own terms.

5.3 Physical condition

The building and its services have been maintained since the 2004-08 refurbishment without the benefit of a cyclical survey. The preparation of this BCMP has involved a new condition survey for both fabric and services. The FJC Studio building condition survey of July 2025 found the external fabric of the buildings to be generally in reasonable order. The following are a selection of items highlighted as being a current concern, and potentially problematic.

I.5.3A
The Vulliamy Facade is composed of brick with a rendered finish to imitate stone. This stucco was made of a natural cement using lime and ground septaria, which achieves a hard set, considerably harder than a traditional lime render, but very much weaker than a modern cement. It is brittle and consequently prone to cracking, which admits moisture, leading to further delamination. Repairs conducted in the 1990s need to be studied closely as considerable research was done to propose a comparable substitute with materials available today. Conservation works were undertaken as part of the 2004-08 works and subsequent degradation is evident, particularly at the base of the columns and on local areas of the entablature.

I.5.3B
Windows and doors are generally in fair condition. However, widespread decoration is required, with local repair of weather bars and new seals in sashes. Decarbonisation project works have addressed a number of timber windows and doors.

I.5.3C
The Farrell-designed Atrium is 18 years old at the time of writing. This uses planar glass, where the system including the interlayer and the silicon joints have a finite lifespan typically of 20-25 years. Plans need to be put in place for either the wholesale refurbishment of the Atrium or for its replacement as the system will become increasingly prone to failure as the materials degrade. It is currently not cleaned owing to difficulties with access. Anything other than a like-for-like replacement would need to be considered with respect to the significance of this part of the building and the space created.

I.5.3D
Display cases are either museum-quality , as at lower ground level, or customised units made as part of the Farrell refurbishment, such as those found on the ground floor and specifically those over doorways. The latter are not airtight and the glass has slumped where supported on the ends. These will need to be refurbished or replaced as they are not fit for purpose. The objects within are largely apparatus from either the Spottiswood or Dewar collections. These are dusty, as no effective seals were provided when installed, and the lighting in many of the cases is no longer functioning.

The museum-quality cases require regular maintenance and servicing to ensure seals and lighting are still functioning correctly.

I.5.3E
Although the condition survey drew attention highlighted several roof-related defects, particular attention was drawn to the failings of the fifth-floor hipped roof. The poor detailing and condition of the leadwork gutters and downpipes has meant that in major downpours this roof has been unable to keep the water out of the room below and is now regularly leaking. Slates show signs of nail fatigue (the failure of corroded nails leading to slates slipping). This suggests that this roof finish has come to the end of its life. It could conceivably be reslated using much of the same slate, with new lead gutters, ridge and hips. Other roofs are generally in much better condition, although there are specific areas of concern such as a failed coping adjacent to the cupola.

Render applied to the lift motor room and the adjacent lightwell over the rooflight are also failing. Elevated access walkways and steps as found on the back of both Nos 20 and 21 are generally severely corroded, with evident cracking, and should be replaced.

I.5.3F
The Steensen Varning Building Services Condition Statement (May 2025) was undertaken while many existing systems were being adapted to meet the requirements of the decarbonisation project. Nonetheless, most systems remained without upgrades, notably the cabling, hot and cold water, and heating pipework.

Electric cabling largely dates from the 2004-08 project. Hence it is only the distribution boards that, having been subject to numerous changes, are approaching the end of useful life. There is concern that cabling has been installed without sufficient guarding and firestopping where it passes through walls and floors.

Coldwater tanks and booster sets require replacement, but generally pipework is seen to be in good condition.

I.5.3G
The Ri maintains an asbestos register and paint analysis has been undertaken when windows have been refurbished. There were understood to be no lead paint samples found. However, these processes need to be maintained as there are many parts of the building that are not likely to have been comprehensively refurbished in recent times. Therefore, deleterious materials may still be present.

I.5.3H
Museum displays were arranged over the lower three floors with an audio guide. This system is currently not operating, and in practice the museum is largely focused on the display cases at lower ground level. Displays at ground level are partially inoperable and concealed by coat racks. There is a need to refresh the museum displays.

I.5.3I
The decoration and maintenance of finishes is an extensive issue, highlighted in the condition survey. Since 2008, extensive changes have arisen from Cartier occupying the ground floor of No 20 and the removal of the restaurant. These have resulted in spaces being reappropriated, and the decorative scheme should be revisited accordingly.

I.5.3J
A key feature of the Theatre finishes is the Kinkarakami Japanese wallpaper panels. These survive but appear to have been overpainted. The wallpaper extends into the Ambulatory, where it has become worn and is damaged, requiring repair. The wallpaper in the Theatre underwent significant conservation in the 2004-08 works; however, it has become damaged once more.

I.5.3K
For a number of years, the reflector dome has been parked at a lower level and hence the clerestory window light is obscured. Steelwork has been constructed beneath it to act as a point of support for installations within the auditorium. Ventilation is provided via the extraction plenum and the air handling plant room on the roof (the initial installation was a feature of the 1930s rebuild and hence the clerestory was not intended as a primary means of ventilating the auditorium). The reflector is painted matt white and therefore not operable as intended and the clerestory lights have been fitted with an opacity film. It should be noted that since its construction, the current auditorium has incorporated projection of visual media, which requires black-out. As a result, the use of natural light has only ever been required by exception. Retaining the potential to reinstate the use of the reflector is important; however, any restoration of its function would need to be supported by further research of the 1930s installation and careful consideration of the practicality of undertaking and operating this while safeguarding the use of the auditorium.

5.4 Previous alterations

I.5.4A
Over the course of the last century as needs have demanded, the roofscape and rear lightwells have accrued numerous ventilation and other service ducts. These are unsightly and add to the risk of failure of the roof covering.

I.5.4B
The integration of Nos 18 and 19 into the building required internal access and a shared goods lift, which was installed at the rear of No 20. The sale of these buildings renders the layout redundant. The lift and its associated access routes and store areas fill the former lightwell at the rear of No 20 and remove natural daylight from its staircase. This is an example of a prior change that is harmful and could be reversed.

I.5.4C
The ambition of the Ri is to provide equitable access to science. This is embodied within the aims of the scheme as originally envisaged by Terry Farrell. The scheme implemented substantial changes and introduced a new space in the form of the Atrium, with links to adjacent spaces that have now been partially removed. However, the concept of this scheme is perhaps more important than any single component, in that it sought to open up the building to improve circulation and bring visual clarity to the previously congested spaces. The significance of these changes is now a part of the significance of the Ri. It is clear however, that not every aspect of

this scheme was implemented and that successive changes made since have eroded its effectiveness. The original aspiration should be revisited in order to achieve the best possible use of the building and the interpretation of the collection.

5.5 Collections

The collection is held under the auspices of the Faraday Museum, which is accredited by Arts Council England. As such its procedures are reviewed periodically. The collection is registered as being over three floors with the lower ground, ground and first-floor displays an integral part of the collection.

The archive is retained on site. However, owing to space constraints the object store has been relocated off site. About 20 per cent of the collection is on display at any one time. This is considerably higher than national museums such as the British Museum, which displays less than 1 per cent.

Resources

I.5.5A
Over the past few years, the Ri has marginally increased in absolute terms the resources it devotes to its heritage. However, there is a need for extra resourcing, not least to fund conservation works on archival and iconographical material and complete the collection cataloging exercise.

Archives

I.5.5B
Although most of the collections are in a reasonable state, parts need to be boxed and re-shelved in conditions appropriate to BS EN 16893 (Conservation of Cultural Heritage) and BS 4971:2017 (Conservation and Care of Archives and Libraries).

I.5.5C
The acquisitions and disposal policy for the collections, objects and archive specifies that only material relating to the Ri or to those who have worked in the building should be collected. It is possible that lack of storage space might prevent the accessioning of items that are within the acquisitions policy.

I.5.5D
The sump pump is located within the archive's Reading Room, which presents a potential threat to the condition of archived material. It should be reviewed as to whether this can be relocated.

I.5.5E
Relatively little lending takes place due to lack of wider awareness of the collection and lack of internal resource. Cataloguing, a new database and a publicly accessible interface, combined with additional staff resource, would support increased lending.

Books

I.5.5F
The Ri maintains an extensive collection of books, reflecting its longstanding commitment to the advancement and dissemination of scientific knowledge. The collection includes works spanning centuries, offering invaluable resources to researchers, scholars and the public interested in science, history and education. The archive preserves historical texts but is no longer a repository for contemporary scientific literature.

The institution no longer maintains a Members' Library (this ceased in 2004) and there are no facilities for private study outside the archive store. The books are consequently maintained on display in public areas of the building without the oversight of a library team.

I.5.5G
A significant number of books, including some 19th-century volumes, are in poor condition and need to be rebound. Many of the 20th-century books printed on acid-rich paper are showing signs of deterioration.

I.5.5H
The books on display include many personal first editions containing letters and other material. This should be catalogued. Although the most valuable books (monetarily valuable or historically significant) have been removed from public view, the majority of the collection is still at risk of theft and damage. This is addressed by the provision of 'cat gut' plastic twine, which deters removal but is unsightly. The regular removal of volumes is important to maintain the shelving and fully clean the books, which is not currently undertaken.

I.5.5I
Since the books are not regularly removed, there is no means to assess the condition of the shelves and any latent defects in the wall behind. These issues have developed since library activities ceased and will need to be considered to address the preservation of the important book collections. It should be recognised that the books make a contribution to several of the most important rooms , notably the Library and the Sunley Room.

Iconographical collections

I.5.5J
The photography is of notable interest and should be digitised as part of the online archive. A significant amount of the photography collection has been scanned already, although this is not publicly accessible.

Scientific apparatus and instruments

I.5.5K
Items in this collection are almost invariably made of robust inorganic materials and require only minor surface cleaning. Display cases above doorways are not airtight and have consequently trapped dust. Temperature control in display cases has been impacted by the failure of halogen lighting systems, which need to be upgraded with LED systems. The condition of display mountings, particularly where these are not readily adaptable, is of concern.

I.5.5L
The instrument collection includes many items from the Spottiswood Collection. These items often have no provenance beyond the collection and are displayed primarily for their visual appeal on account of their often finely observed craftmanship. Many of are positioned in the cabinets above doorways installed in the Farrell-led refurbishment. These are not museum-grade cabinets and have consequently not offered the degree of protection required. The widespread failure of the associated lighting and the deflections observed in the shelving is of concern.

Historic furniture

I.5.5M
The risk of potential damage to furniture is mitigated by oversight from the heritage team for all elements that are moved, even if only temporarily.

I.5.5N
There are many pieces of furniture that have close associative links to great scientists of the past. At present opportunities to harness the heritage and educational potential of these links are being missed through:

- Having a small proportion of the collection on display, with a number of items in the off-site store
- Lack of interpretation to draw attention to the associative connections.

Associative issues

I.5.5O
Without the necessary presentation to fully convey the associative significance of such spaces, there is a threat that significance may be lost through:

- The inadvertent removal of pertinent items unsupervised by curatorial staff
- The removal of pertinent historic fabric
- The removal of a room's traditional purpose for a new use.

General/cataloguing

I.5.5P
The digitisation of the collection is important as it can extend the reach of the RI considerably. It would also raise awareness of the significance of the collection.

I.5.5Q
Many furnishings are an integral part of historic interiors and consequently need to be recorded in an inventory. Where there is documentary evidence to demonstrate that elements have been in place for considerable time, the historic significance of the object is partially fulfilled by maintaining its position in the building.

I.5.5R
The building has an extensive art collection in addition to the iconographical collections in the archives. These include paintings and sculpture of individuals, and important paintings recording lectures and the operation of the theatre. Many would benefit from cleaning, restretching and repairs to frames.

I.5.5S
Educational displays installed as part of the Farrell scheme are now hampered by not having an operational audio guide. The relocation of the Café has removed the temporary display area around the glass lift, which means the displays no longer function as intended. This has the effect of focusing the museum activity on the lower ground level when it was conceived across three floors.

5.6 External factors and statutory approvals

I.5.6A
The environment in London 50 years or so ago was highly detrimental to the facade, which was almost completely black prior to its restoration in the 1990s. Air quality has substantially improved, with new emission standards for both buildings and traffic. The prognosis is that this will continue to improve and that historical issues arising from poor air quality will no longer be a significant issue. Organic growth, as seen in rural locations, will become more of an issue in the absence of sulphuric airborne pollution, particularly where surfaces do not free drain and are shielded from sunshine.

I.5.6B
All historic buildings are subject to climate change issues, which may manifest in ways that are not immediately apparent. Increased temperatures are accompanied by higher anticipated rainfall and increased exceptional events such as deluges and high winds. The facade and roof will need to be monitored as part of routine maintenance procedures to ensure that decay is kept in check. Provision for rainwater pipes and gutters is likely to need to be increased.

I.5.6C
The pavement that runs beside the frontage is narrow, and pedestrian access is hindered by street furniture dotted along its length and parking along both sides of the street. The congested pavement is a challenge to those trying to make their way to, or gather outside, the Ri. The arrangement allows precious little space for anyone to stop and look through the windows to the interiors, to find the entrance or to appreciate the qualities of the facade. This clearly acts as a deterrence to entering the building for anyone other than dedicated users and is evidently not what was intended when the facade was constructed.

I.5.6D
Nos 20 and 21 are Grade I listed and located in the Mayfair Conservation Area. They have been afforded the highest level of statutory protection. Proposals for their future alteration will be subject to consideration by Westminster City Council, Historic England, and the relevant national amenity societies. Listed Building Consent will be required where works are likely to affect the special architectural or historic interest of the buildings. It should be noted that the Listed Building Consent regime is separate and additional to planning permission. Any future planning or listed building consent applications will require a Heritage Statement or Heritage Impact Assessment which should be prepared with reference to this BCMP.

Future works will also be subject to building control. Relaxation of certain regulations may be applicable owing to the listed status of the buildings. Specific matters will need to be discussed with an appropriate Approved Inspector."

5.7 Fire protection

I.5.7
Fire safety understandably focuses on means of escape and on the means provided to the Fire Brigade to fight a fire. There is, however, a wider requirement to consider how active and passive fire protection measures can be put in place to protect the heritage asset. This concerns fire prevention, early detection and compartmentation to restrict the extent of damage that can reasonably be anticipated in the event of a fire.

A large proportion of this building was constructed in the 1930s, in accordance with the London Building Act 1930, which required fire compartmentation, particularly to isolate floors and staircases. This building consequently has a degree of passive fire protection, although this has been undermined by subsequent service installations. It could however be reinstated, provided these installations can be accessed, to achieve a degree of compartmentation, even if this can only be assessed and not fully certified.

Fire protection is greatly assisted by early detection and therefore an upgrade of the fire alarm system should be considered, potentially with suppression systems in areas of highest risk, such as laboratory and kitchen spaces.

Many doors are historic and contain glass or panelling. It is likely that, although many of these were installed as fire doors in the 1930s, they would not comply with current certification. Existing doors can be assessed and historic doors can be reconstructed to achieve particular fire ratings – however, this requirement is normally accompanied by a change of use. Many of the solid wooden doors are an important part of the 1930s refurbishment and their replacement should be resisted. Door closers need to be maintained and seals can be fitted to the frames and door edges to achieve fire and smoke control.

The fire separation of the archive store and its protection from flooding are important considerations. It is understood these factors were incorporated into its design– however they should be reassessed to safeguard the collection within.

5.8 Access and inclusion

I.5.8A
The historic lift in the Entrance Hall is not currently in use, owing to issues with operating insurance. This renders the Institution dependent upon the glazed lift in the Atrium which serves lower ground to fourth floor level, including both tenanted and public areas. It is the only wheelchair-accessible lift despite issues with

the threshold gradient at first-floor level. In addition, the Cartier premises has effectively removed the staircase of No 20 from the main circulation and serves primarily as a fire escape for the southern end of the combined buildings.

The combined effect of these issues is that the building has insufficient vertical circulation. Greater use should be made of the goods lift in No 20, as the primary lift is unsuitable for lifting goods and catering supplies. In the future, the circulation needs to be re-evaluated. Increased provision is required for both lifts and stairs, particularly at lower levels to address the requirements of the Equality Act 2010 and to promote inclusive design principles that encourage equality of access.

I.5.8B
Some parties that visit the Ri arrive by coach. As there are presently no dedicated coach bays, these are directed to bays some distance from the Institution.

Educational

I.5.8C
Visiting groups currently have access to limited dining areas at the Ri. This can be addressed by providing spaces that can be reappropriated for different uses throughout the day.

I.5.8D
Pressures on timetables and constrained budgets mean that schools find it hard to justify taking time out to visit the Ri. Hence the outreach activities and online presence are particularly useful.

5.9 Scientific research

I.5.9
Research is currently undertaken by tenants, in particular by UCL and the London Institute of Mathematical Sciences. It is important to recognise that the nature of research has changed, with considerable means to conduct research remotely. As a result, the commitment to ongoing research on site is no longer a key aspect of the role of the Institution. The presence of wet labs within the historic fabric, such as those formerly occupied by the Davy Faraday Research Laboratory, has been an important aspect of the building use. However, it supersedes different forms of laboratories that were present previously. It is therefore reasonable to envisage that, as the nature of research changes, the building should be enabled to adapt.

6. Management recommendations

Approach and methodology

As stated in **Section 2**, for the purposes of the Ri BCMP, 'policies' are referred to as 'management recommendations' at the request of the Ri to differentiate between BCMP policies and their internal policies associated with the running of the organisation and the Museum.

The management recommendations comprise a set of aims and objectives for the Ri to guide it into the future. They are informed by the significance identified in **Section 4** and with respect to the issues discussed in **Section 5**. Management recommendations are divided into a nomenclature for ease of interpretation. Maintenance and repair actions should be prioritised and works can be further categorised as urgent, necessary and desirable Works as defined by the Historic Environment Scotland guidance:

Urgent: These are immediate, essential actions needed to stop or prevent the deterioration of a structure
Purpose: To prevent the imminent loss of fabric or threat to safety

Necessary: These are works required to secure the long-term future and structural integrity of the historic asset, but which are not necessarily immediately life-threatening
Purpose: To maintain the building's function and prevent future deterioration.

Desirable: These are items that would improve the site but are not vital to its physical preservation
Purpose: To enhance understanding, presentation, or energy efficiency.

Some items have been left blank to encourage users of the BCMP to add to the document and to amend where necessary. Links are to provide quick reference to the relevant significance and issues that have informed the recommendations.

Recommendations address a wide range of issues where the significance of the building might otherwise be threatened. These vary from management issues to practical fabric conservation issues and are accordingly divided by subheadings as below. Given this document is intended to act as a guide over a prolonged period, some of the recommendations are purposefully 'desirable', as these concern aspects where awareness is necessary when addressing change in the future.

The management recommendations have been organised under tables with subheadings as follows, which broadly follow the defining issues:

6.1 General management principles
6.2 Understanding significance
6.3 Maintenance, repairs and conservation
6.4 Future changes
6.5 Collections
6.6 Climate change, mitigation and adaptation
6.7 Fire protection
6.8 Access improvements
6.9 Information and records management

The following columns have been included in the tables:

- **Reference** relates to a unique reference number (prefix 'R') applied to each Management Recommendation
- **Significance** relates to the corresponding reference to significance (prefix 'S') set out in **Section 4**
- **Issues** relates to the corresponding reference to issues (prefix 'I') set out in **Section 5**
- **Management recommendation** column provides the description of the required action to be implemented
- **Urgent, necessary or desirable** indicate the priority category applied as the definitions described.
- **Future actions/notes** provides an area to record later aspirations/changes to the plan as requirements evolve.

6.1 General management principles

These are high-level, foundational guidelines that ensure decisions regarding change are consistent, transparent, and respectful of the asset's heritage.

Reference 'R'	Issues 'I'	Management recommendation	Urgent, necessary or desirable	Future actions/notes
R.1.1	I.5.1	The Ri will ensure the management of the building is coordinated to safeguard against competing interests between different users. The recommendations in the BCMP will be adopted and applied across the building and different tenancies, to ensure a holistic approach is taken.	Necessary	
R.1.2	I.5.1	The Ri will maintain a constant review of threats to the overall significance of the building and its collections and of opportunities for improvements as set out in **Section 5**. The Ri will record these by updating the BCMP, which is a live document to be reviewed every ten years, but if significant proposals arise the review would happen sooner.	Necessary	
R.1.3	I.5.1	The Ri will publish the BCMP and make copies of it available for all staff and contractors, with a copy also deposited in the Greater London Historic Environment Record and Westminster Local Studies Library.	Necessary	

6.2 Understanding significance

Architecture conveys meaning, as such there should be an overarching principle that any repair, change or addition to the Ri will sustain its heritage values and overall significance.

Reference 'R'	Issues 'I'	Management recommendation	Urgent, necessary or desirable	Future actions/notes
R.2.1	I.5.2	The significance of the Ri is multi-faceted, with the associative historic value of events, discoveries and persons of importance contributing as much as, or in some cases more than, its aesthetic (architectural) value. The Ri will seek to increase appreciation and understanding of these values and links to items within the collection or areas of the building.	Desirable	
R.2.2	I.5.2	All those involved in preparing changes to the building and its displays should refer to this BCMP in the first instance and also undertake additional research specific to the space affected. Such extra studies should be prepared against the contents and findings of this BCMP and appended to it.	Desirable	

Reference 'R'	Issues 'I'	Management recommendation	Urgent, necessary or desirable	Future actions/notes
R.2.3	I.5.2	The Ri will undertake an archeological watching brief for works below ground level. Archeologists will be employed to record and analyse any historic walls exposed during future works or alterations.	Desirable	
R.2.4	I.5.2	The Ri will reach out to wider audiences to increase understanding of the heritage significance of the Ri, its collections and historical associations. This will be reviewed annually alongside Ri educational policies – acknowledging that what is valued by a society can change over time, and that understanding of the significance of the Ri and its historical associations may therefore change in the future.	Desirable	
R.2.5	I.5.2D	Anyone proposing changes to the Theatre, whether in response to changing media technologies or conservation and repair of the fabric, must be aware that the high significance of this space derives from both the current Theatre and its predecessor. All activities must be conducted carefully with an awareness of the high significance of this space, accepting that the primary significance is derived from the continued activity of the lecture series undertaken within.	Necessary	
R.2.6	I.5.2	Anyone proposing to refurbish the impressive space of the Grand Staircase will plan their work in the knowledge of its elevated architectural (and associative) significance. Research must be undertaken to determine how this space has evolved over time and whether the association with John Carr and provenance of the current plasterwork can be confirmed.	Necessary	
R.2.7	I.5.2	Anyone proposing upgrades to awnings, banners or lighting of the Vulliamy Facade will ensure their design causes minimum visual detraction from its architectural significance as set out in **Section 4** of this BCMP. Lights, awnings and banners should be designed to work with the facade, with the lights as hidden as possible and the banners and awnings easily demountable.	Necessary	
R.2.8	I.5.2E	Anyone developing proposals for the 20th-century elements of the site built to the designs of LR Guthrie should do so with an appreciation of the quality and relatively unaltered condition of these spaces as set out in **Section 4**.	Necessary	
R.2.9	I.5.2	An application should be made to Historic England to undertake a listing enhancement to update the official designation description. This would allow for the significance of the 1930s and Terry Farrell works to be formally assessed and, if appropriate, recognised in the designation.	Necessary	
R.2.10		Historic associations with individuals and organisations involved in colonialisation and slavery should be acknowledged.	Necessary	
R.2.11	I.5.3K	The provenance of the current auditorium cupola and reflector should be determined by additional research into the original operation of the current reflector, as well as any surviving records of the operation of the original cupola and the possible association with Thomas Young.	Necessary	

6.3 Maintenance, repairs and conservation

Historic England have published a 10-volume series called 'Practical Building Conservation'. The guidance emphasises the need for best practice in all stages of work, from inspection and understanding of the fabric to recording, dismantling, movement, transport, storage, repair and reinstatement.

Reference 'R'	Issues 'I'	Management recommendation	Urgent, necessary or desirable	Future actions/notes
R.3.1	I.5.3	The Ri will carry out inspections every five years, including condition surveys. Alongside the BCMP, existing condition surveys have been undertaken which form the basis for subsequent inspections and enable the building condition to be monitored, remedial work planned and any serious issues addressed.	Necessary	
R.3.2	I.5.3	The Ri will retain, wherever practically possible, historic fabric that provides evidence of the Ri's past form, use and associative connections. This will be repaired as necessary and 'explained' within this BCMP in order to enhance appreciation of the place's evolution.	Necessary	
R.3.3	I.5.3	The Ri will prepare and undertake a maintenance programme informed by condition surveys completed every five years. Works will be programmed to address decay and minimise the overall amount of work necessary, while enabling suitable finance to be put in place in advance.	Necessary	
R.3.4	I.5.3F	The Ri will undertake periodic upgrades of services, including removal of redundant services and repair of associated builders work openings, to rationalise services and minimise the impact of visible services on the historic interior.	Necessary	
R.3.5	I.5.3G	The Ri will maintain a record of harmful materials found on site including asbestos. Prior to any programme of works being undertaken at the Ri, a programme of archival research and fabric analysis will be carried out to confirm whether works will need to factor further asbestos removal into its timetable and costings.	Urgent	
R.3.6	I.5.3A	The Ri will manage repairs to the Vulliamy Facade over time to minimise failure of the render and to prevent water ingress. Repairs will target susceptible areas, ensuring as much original fabric is retained as possible, and will be informed by the considerable research and associated repair methodologies of the natural cement stucco, developed by Stafford Holmes when the facade was repaired in the 1990s.	Necessary	
R.3.7a	I.5.3J	The Ri will undertake repair of the embossed Kinkarakami wallpaper in the Theatre based on a clear repair and conservation methodology,	Necessary	
R3.7b	I.5.3J	The Ri will undertake further research to better understand the origins of the paper used in the Ambulatory, and endeavour to repair and conserve it as appropriate	Necessary	
R.3.8	I.5.3	The Ri will undertake repairs to ferrous concrete in accordance with methodologies pre-agreed with the Ri Conservation Team to ensure repairs are appropriate and coordinated as part of a holistic approach of ongoing repairs. All repair methodologies will be recorded along with a record of the work undertaken.	Necessary	
R.3.9	I.5.3C	The Ri will undertake regular maintenance and cleaning to prolong the life of the planar glazing system. Thereafter proposals will be required to either refurbish the glazing or to replace the Atrium, which requires a long-term plan.	Necessary	
R.3.10	I.5.3	Contractors undertaking work on 18th-century plasterwork in the Grand Staircase and areas of fibrous plaster from the Guthrie refurbishment must prepare a method statement for the approval of the Ri Conservation Team (and with Westminster City Council and Historic England where appropriate) prior to carrying out works. Method statements must be informed by Historic England's 'Historic Fibrous Plaster in the UK – Guidance on its Care and Management' document (June 2019).	Necessary	
R.3.11	I.5.3	Contractors undertaking work on the historic metal balusters to the Grand Entrance Stair must prepare a method statement for the approval of the Ri Conservation Team (and with Westminster City Council and Historic England where appropriate) prior to carringy out works. All work undertaken must be recorded, and any historic metalwork not reinstated should be retained in the archive.	Necessary	
R.3.12	I.5.3A	Contractors will be provided with a copy of Historic England's guidance '*Scaffolding for Historic Buildings – Guidelines for Best Practice*' (July 2025) and should avoid drilled fixings into the Vulliamy Facade for restraining scaffolding. Where possible, contractors should design scaffolding to be freestanding and restrained with through-ties via window openings or reveal ties, in accordance with Historic England's guidance.	Necessary	
R.3.13	I.5.3	The Ri will fundraise for conservation projects and seek opportunities to incorporate conservation works into other building projects or repair and maintenance cycles.	Necessary	
R.3.14	I.5.3K	The Ri will seek to explore the potential of reinstating the use of the Lantern Lift and will undertake further research to determine the details of its original 1930s installation. The Ri Conservation Team will ensure its conservation is appropriate, that it can respond to the functional needs of the auditorium, and make any suitable adjustments to comply with health and safety requirements. All repair methodologies will be recorded along with a record of the work undertaken.	Desirable	

6.4 Future changes

Ensuring that the Ri has a sustainable future requires adaptation to meet contemporary expectations and changing needs. Future alterations should demonstrate an understanding of the building's history and heritage values and be informed by overall significance.

Reference 'R'	Issues 'I'	Management recommendation	Urgent, necessary or desirable	Future actions/notes
R.4.1	I.5.1	The Ri will adopt a pragmatic approach to developing the building as the organisation evolves. Decision-making on adaptation will be informed by balancing the needs of the organisation with the requirement to maintain fabric of significance.	Necessary	
R.4.2	I.5.2	The Ri will ensure that future alterations are informed by evidence and guidance contained in this plan and with reference to the significance plans in **Appendix 7.3**. All changes will be based on an understanding of significance and made in accordance with statutory regulations, policy and guidance as set out in **Section 1**. Wherever possible, the Ri will seek pre-application advice from Westminster City Council and Historic England.	Necessary	
R.4.3	I.5.3	The Ri will ensure that all future work should be designed by professionals with the necessary skills and accreditation, and carried out by people with appropriate skills using suitable materials.	Necessary	
R.4.4	I.5.3	Those planning the repair and future reordering and re-presentation of the buildings should consider the challenges of air and noise pollution. An assessment of air quality and noise should be done to understand the effect of pollution on the building's fabric and the need to address visual and/or physical decay by cleaning.	Necessary	
R.4.5	I.5.4B	The Ri will consider the possibility of restoring natural light to No 20's stairwell (the Mond stair), subject to building regulations, fire safety, services supply and any other relevant needs that may mean the current arrangement would need to remain as existing.	Desirable	
R.4.6	I.5.4	The Ri will consider the possibility of reopening the entrance to No 20, and/or bringing the Entrance Hall back into use, subject to the requirements listed in 4.5 above.	Desirable	
R.4.7	I.5.2C	The Ri will consider undertaking further documentary research to inform the understanding of No 20 believed to exist in the archives of the Oxford and Cambridge Club.	Desirable	
R.4.8	I.5.2	The Ri will consider restoring the original floor layout, where supported by research of the original layout of the building and where appropriate to current uses. This may include reinstatement of the secondary stair between ground and second-floor level.	Desirable	
R.4.9	I.5.4C	The Ri will undertake a written appraisal of the 2004-08 Terry Farrell scheme and its vision. This will inform planning for the future of these elements.	Desirable	
R.4.10	I.5.3	The Ri will consider the restoration of room layout, and furniture and other items from the collections where practically possible. The Ri will use the documentary records contained within the Ri collections and archive to inform planning for future alteration or restoration of interiors.	Desirable	
R.4.11	I.5.1	The Ri will seek to maintain the domestic character of the former Director's Apartment on the second floor of No 21, and to potentially improve interpretation of these interiors, which have very high associative significance. Tenancy agreements must factor in the safeguarding of such significance.	Desirable	

6.5 Collections

The collections are governed by the policies of the Faraday Museum. However, many elements are an integral part of publicly accessible historic spaces, which require careful management.

Reference 'R'	Issues 'I'	Management recommendation	Urgent, necessary or desirable	Future actions/notes
R.5.1	I.5.5A	The Ri will complete the exercise to research, analyse and catalogue the collections. Extra funding and staffing will be required to ensure the extensive programme of cataloguing, research and analysis can be completed and the collections more fully 'understood'.	Necessary	
R.5.2	I.5.5	The Ri will complete a review of the condition of the collections, together with a current gazetteer of publicly displayed items, to identify items in need of conservation or repair and quantify the works required and their cost, and set this out in a programme. Fundraising will be required to meet the cost of these required works.	Necessary	
R.5.3	I.5.5E	The Ri will regularly review long-term loans to ascertain whether their return would be in the best interests of the Ri's presentation of its heritage or whether ongoing lending remain the best course of action when considering access and reach.	Necessary	
R.5.4	I.5.5G I.5.5I	The Ri will regularly remove books for cleaning and the walls will be inspected for latent defects. Any new cracking or cracks that have widened will require inspection by a structural engineer.	Necessary	

6.6 Climate change, mitigation and adaption

The Ri has secured funding from the Greater London Authority (GLA) for its Footprint Project, which seeks to reduce the environmental impact of the building and build in climate resilience. The funding will be a catalyst for comprehensive retrofit, which could include improvement of building plant, services and systems while enhancing building fabric. The core objectives of the Footprint Project are to conserve and repair the fabric for future generations, chart a course to net-zero emissions and address energy consumption and waste within the organisation. The recommendations set out below seek to support these objectives.

Reference 'R'	Issues 'I'	Management recommendation	Urgent, necessary or desirable	Future actions/notes
R.6.1	I.5.6	The Ri should record and analyse the performance of all environmental systems so the real-time performance of the building can be determined and any room for improvement can be identified.	Necessary	
R.6.2	I.5.6	The Ri is committed to a programme of sequential fabric efficiency upgrades to secure net zero. These were initiated as part of the programme of works for the decarbonisation project, which included the replacement of gas heating and cooking systems with electric alternatives. Subsequent upgrades are anticipated dependent upon availability of funding.	Desirable	

Reference 'R'	Issues 'I'	Management recommendation	Urgent, necessary or desirable	Future actions/notes
R.6.3	I.5.6	Those designing and installing fabric efficiency upgrades will refer to the Road Map to Net Zero set out in the decarbonisation project design proposals. This is to avoid maladaptation and to achieve a whole-building approach, where each change can build upon the contribution of that made previously. All fabric efficiency improvements should be reversible where possible and minimise the impact upon historic fabric, be that through minimising loss or visual impact.	Necessary	
R.6.4	I.5.6	The Ri will adopt a whole-building approach for future plans to decarbonise and increase energy efficiency. The Ri will consider following British Standard PAS 2038 or another appropriate framework.	Necessary	
R.6.5	I.5.6	The Ri will undertake a climate change risk assessment and develop an action and adaptation plan to increase the building's resilience to the impacts of climate change.	Necessary	

6.7 Fire protection

Fire safety is of the utmost importance to the Ri, its staff and visitors. The recommendations below relate to fire protection measures – when developing these, it is important to consider the protection of the asset and the contents held within as well as the significance of the building.

Reference 'R'	Issues 'I'	Management recommendation	Urgent, necessary or desirable	Future actions/notes
R.7.1	I.5.7	The Ri will undertake a fire survey to assess options to upgrade fire protection measures where practicable in alignment with the current British Standards (BS 5588). The services of specialist fire advisers should be sought to ensure the highest fire protection standards are realised while minimising impact to historic fabric and associated significance.	Urgent	
R.7.2	I.5.7	The Ri will undertake fire disaster recovery planning. A review of upgrading passive fire protection throughout the building will be completed.	Necessary	
R.7.3	I.5.7	The Ri will review the need for compartmentation walls and floors and whether fire barriers can be introduced in voids. The development of a current fire strategy ensures safety of users. However, measures need to go further to protect the heritage asset from total loss and to enable the Fire Brigade to isolate fire within small areas of the building.	Urgent	

6.8 Access improvements

Access is essential for achieving equality for those with disabilities, but extends to how all staff and visitors use the building, and how the building is perceived and experienced.

Reference 'R'	Issues 'I'	Management recommendation	Urgent, necessary or desirable	Future actions/notes
R.8.1	I.5.8	Those planning changes to the Ri should seek design solutions that minimise the impact on historic fabric, spaces and views while providing universal access to comply with the Equality Act 2010.	Necessary	
R.8.2	I.5.8A	The Ri will review vertical access provision as part of an access audit and potentially a revised access strategy.	Necessary	
R.8.3	I.5.8A	The Ri will review wayfinding and circulation routes throughout the building, acknowledging that the routes introduced by the Terry Farrell refurbishment are no longer operational. This will be kept under review and potentially addressed as part of future proposals for the building.	Necessary	
R.8.4	I.5.8	The Ri will develop an access policy informed by a detailed access audit, implementing Part M of the Building Regulations where practicable and undertaken with respect to Historic England's guidance, 'Easy Access to Historic Buildings' (June 2015).	Necessary	
R.8.5	I.5.8	Changes will be implemented to improve access without harming heritage value in spaces of high significance, as identified on the significance plans in Section 4.2.	Necessary	
R.8.6	I.5.8	The Ri is to explore the long-term aspiration to broaden the pavement outside the building to assist with the operation of the entrance and the presentation of the facades. In the context of anticipated changes to personal transportation it is reasonable to reconsider the operation of the street and the impact on the building as part of a long-term consultation with Westminster City Council.	Desirable	

6.9 Information and records management

This BCMP draws together a large amount of information held by a number of different sources. Rendering information accessible and easy to access is essential to enable the BCMP to be managed and acted upon. The Ri has its own information and records management policies that are not duplicated here but should be referred to for further information.

Reference 'R'	Issues 'I'	Management recommendation	Urgent, necessary or desirable	Future actions/notes
R.9.1		The Ri will seek to maintain, as far as is feasible, the space given to the archive to enable documents to be appropriately stored on site (to meet, as far as possible, the standards set out in BS 7913-2013 on Conservation).	Necessary	
R.9.2		The Ri will store copies of the BCMP and associated documents in accordance with the organisational policies of the archive, and information management will be done in accordance with the policies of the Faraday Museum. Physical archives will be retained	Necessary	

7. Appendices

7.1 Chronology of key events in the Royal Institution's history

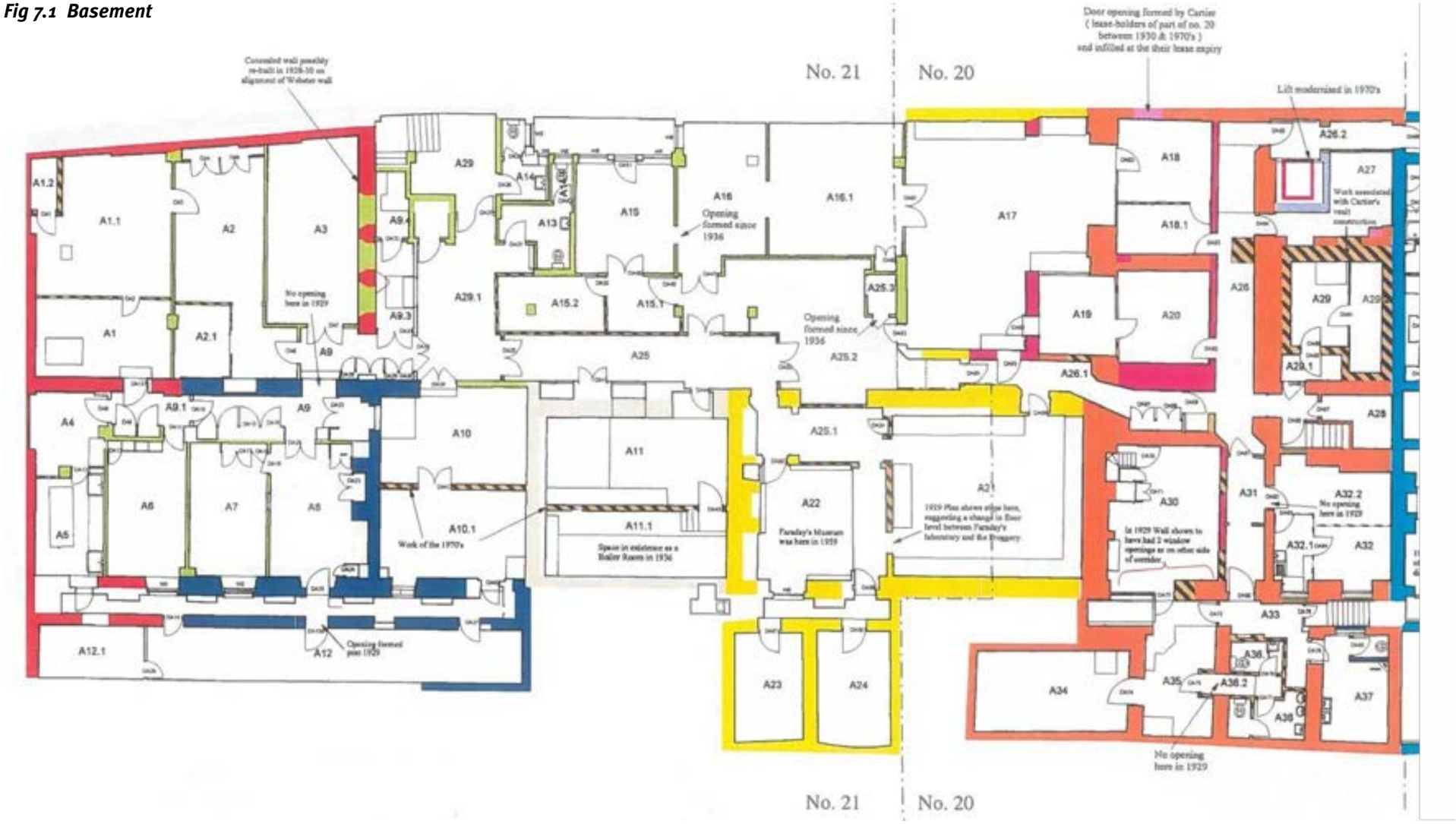
1799	Founded by Joseph Banks, Benjamin Thompson, Thomas Bernard and others
1799	Thomas Garnett appointed Professor of Chemistry and Natural Philosophy
1800	Ri receives its charter
1801	Thomas Young appointed Professor of Chemistry and Natural Philosophy
1802	Humphry Davy appointed Professor of Chemistry. Works on electro-chemistry, isolates sodium and potassium
1812	William Thomas Brande appointed Professor of Chemistry
1813	Michael Faraday appointed as laboratory assistant
1813	Davy, with Faraday, visits Continent
1815	Davy and Faraday return from Continent. Faraday reappointed laboratory assistant.
1816	Davy works on miners' safety lamp
1821	Faraday appointed acting Superintendent of the House
1821	Faraday discovers electromagnetic rotations (first electric motor)
1826	Friday Evening Discourses and Christmas Lectures commence
1831	Faraday discovers electromagnetic induction (first transformer and generator)
1833	Faraday appointed first Fullerian Professor of Chemistry
1836	Faraday constructs first 'Faraday Cage' in Lecture Theatre
1845	Faraday discovers magneto-optical effect and diamagnetism
1853	John Tyndall appointed Professor of Natural Philosophy
1863	Edward Frankland appointed Professor of Chemistry
1868	William Odling appointed Fullerian Professor of Chemistry
1874	John Hall Gladstone appointed Fullerian Professor of Chemistry
1877	James Dewar appointed Fullerian Professor of Chemistry
1887	Lord Rayleigh appointed Professor of Natural Philosophy
1896	Davy-Faraday Research Laboratory opens
1905	JJ Thomson appointed Professor of Natural Philosophy
1921	Ernest Rutherford appointed Professor of Natural Philosophy
1923	William Henry Bragg appointed Fullerian Professor of Chemistry
1938	William Lawrence Bragg appointed Professor of Natural Philosophy
1939	Christmas Lectures paused due to the Second World War
1942	Henry Dale appointed Fullerian Professor of Chemistry
1943	Christmas Lectures resumed
1946	Eric Rideal appointed Fullerian Professor of Chemistry
1950	Edward da C. Andrade appointed Fullerian Professor of Chemistry
1952	Forced resignation of Andrade
1954	William Lawrence Bragg appointed Fullerian Professor of Chemistry
1954	Schools Lectures founded
1960	RS Nyholm appointed Professor of Natural Philosophy
1963	George Porter appointed Professor of Chemistry
1966	Porter appointed Director and Fullerian Professor of Chemistry
1966	Christmas Lectures first televised
1980	David Phillips appointed Wolfson Professor of Natural Philosophy
1981	Mathematics Masterclasses founded
1984	Managers and Visitors committees merged into Ri Council
1985	John Meurig Thomas appointed Director
1989	Richard Catlow appointed Wolfson Professor of Natural Philosophy
1991	Peter Day appointed Director
1998	Richard Catlow appointed Director of the Davy-Faraday Research Laboratory
1998	Susan Greenfield appointed Director
2017	Sarah Harper appointed Director
2018	Shaun Fitzgerald appointed Director
2020	Lucinda Hunt appointed Director
2020	Ri closed due to Covid and livestreamed talks begin from the Theatre
2021	Ri reopens
2022	Katherine Mathieson appointed Director

7.2 Chronology of key events in the development of the buildings

1707	No 20 first appears in the rate books (to Earl of Grantham)
1717	Prince of Wales lives briefly in No 20
1722	Northern extension to No 20 commenced
1755	Nos 20 and 21 divided
c.1757	Further northern extension of No 21
c.1760	Further northern extension of No 21
1772	Construction of Grand Staircase and possible other work commenced
1799	No 21 purchased by the Ri
1800	Conversion work to scientific institution commenced
1801	Third floor added to No 21
1827	Glass furnace built in yard for optical glass improvement project
1834	No 20 becomes a hotel
1837	Facade added to No 21
1857	Small basement Lecture Theatre replaced by laboratory
1867	No 20 returns to private use
1872	Construction of two-storey laboratory on east side
1896	Freehold of No 20 transferred to the Ri by Ludwig Mond
1896	Construction completed of Davy-Faraday Research Laboratory in No 20
1927	Explosion of electrical substation in No 21
1929	Ground floor and basement of No 20 leased to Cartier
1929	Stripping out of northern end and demolition of two-storey laboratory of No 21
1930	Completion of new Lecture Theatre and rooms at the northern end of No 21 and of the new eastern extension
1935	No 19 purchased by the Ri
1935	Southern end of No 21 found to be structurally unsound
1936	Reconstruction of the interiors of the southern end of No 21 completed
c1955	Refit of ground-floor interiors of No 20 by Cartier
1958	Remedial work on facade of No 21 undertaken
1963	No 18 purchased by the Ri
1970	Opening of Bernard Sunley Lecture Theatre on the ground floor of No 21
1971	Expiry of Cartier lease on No 20
1973	Opening of Faraday Museum and Archive Room in basement of No 21
2001	Opening of Science Media Centre in No 19
2008	Opening of the revitalised museum and Young Scientist Centre by Queen Elizabeth II
2016	Ground floor of No 20 leased to Cartier

7.3 Historical record plans

Fig 7.1 Basement



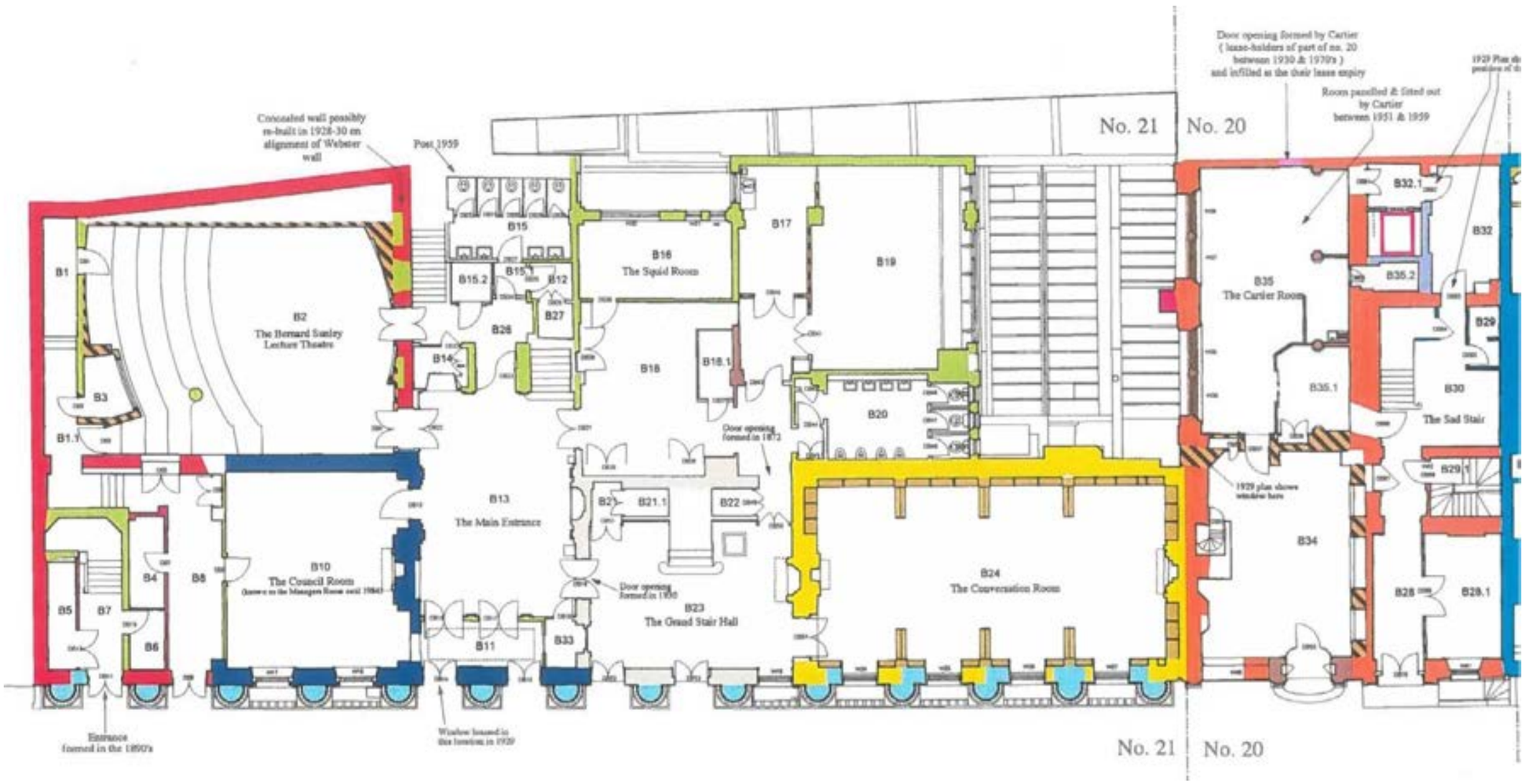
Key to No. 21

- Pre 1799 (James Spiller survey drawings) [walling thought to have been built in the 1720's]
- Pre 1799 (James Spiller survey drawings) [walling thought to have been built in the 1750's]
- Pre 1799 (James Spiller survey drawings) [walling thought to have been built in 1760-63]
- Pre 1799 (James Spiller survey drawings) [walling thought to have been built in 1772]
- 1799-1803 Webster Works (RI ref: Webster Contract Drwgs)
- 1838 Vulliamy Works
- 1895 Works (RIBA Drwg Coll)
- 1928/30 Fabric (Guthrie works)
- Pre 1936 (RI Ref)
- 1936 Fabric (RI ref:P/1931-36/23 LR Guthrie)
- Between 1936 and 1959
- Pre 1947
- 1947 Introduction (LR Guthrie)
- 1949 Introduction (RI ref:P/1949/12 LR Guthrie)
- Post 1959 (RI ref:P/1959/3 WA Mitchell Maint. Schedule)

Key to No's 20, 19 and 18

- Programme of building works completed in 1704
- Programme of building works completed in 1705
- Programme of building works completed in 1707
- Pre 1799 (James Spiller survey drawings) [walling thought to have been built in the 1720's]
- 1895 Works (RIBA Drwg Coll)
- Works of the late 19th Century
- Pre 1936 (RI Ref)
- 1936 Fabric (RI ref:P/1931-36/23 LR Guthrie)
- Between 1936 and 1959
- 1947 Introduction (LR Guthrie)
- Post 1959 (RI ref:P/1959/3 WA Mitchell Maint. Schedule)
- Works of the last 30 years

Fig 7.2 Ground floor



Key to No. 21

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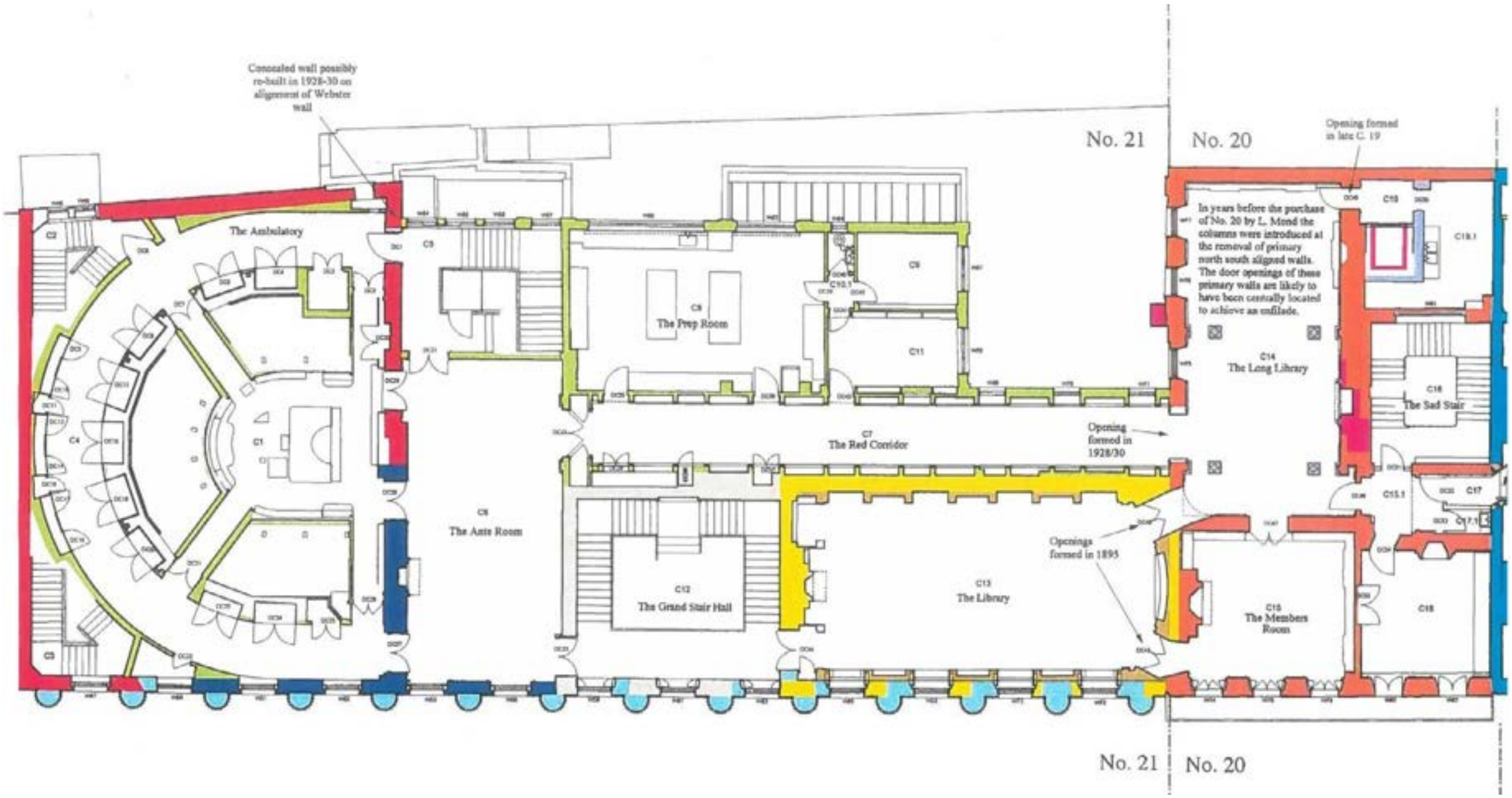
- Pre 1799 (James Spiller survey drawings) [walling thought to have been built in the 1750's]
- Pre 1799 (James Spiller survey drawings) [walling thought to have been built in 1760-63]
- Pre 1799 (James Spiller survey drawings) [walling thought to have been built in 1772]
- 1799-1823 Webster Works (RI ref: Webster Contract Drwgs)
- 1838 Vulliamy Works
- 1895 Works (RIBA Drwg Coll)
- 1928/30 Fabric (Guthrie works)
- Pre 1936 (RI Ref)
- 1936 Fabric (RI ref:P/1931-36/23 LR Guthrie)
- Between 1936 and 1959
- Pre 1947
- 1947 Introduction (LR Guthrie)
- 1949 Introduction (RI ref:P/1949/12 LR Guthrie)
- Post 1959 (RI ref:P/1959/3 WA Mitchell Maint. Schedule)

Key to No's 20, 19 and 18

- Programme of building works completed in 1704
- Programme of building works completed in 1705
- Programme of building works completed in 1707
- Pre 1799 (James Spiller survey drawings) [walling thought to have been built in the 1720's]
- 1895 Works (RIBA Drwg Coll)
- Works of the late 19th Century
- Pre 1936 (RI Ref)
- 1936 Fabric (RI ref:P/1931-36/23 LR Guthrie)
- Between 1936 and 1959
- 1947 Introduction (LR Guthrie)
- Post 1959 (RI ref:P/1959/3 WA Mitchell Maint. Schedule)
- Works of the last 30 years

Fig 7.3 First floor



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- Pre 1799 (James Spiller survey drawings) [walling thought to have been built in 1772]
- 1799-1803 Webster Works (RI ref: Webster Contract Drwgs)
- 1838 Vulliamy Works
- 1895 Works (RIBA Drwg Coll)
- 1928/30 Fabric (Guthrie works)
- Pre 1936 (RI Ref)
- 1936 Fabric (RI ref:PV1931-36/23 LR Guthrie)
- Between 1936 and 1959
- Pre 1947
- 1947 Introduction (LR Guthrie)
- 1949 Introduction (RI ref:PV1949/12 LR Guthrie)
- Post 1959 (RI ref:PV1959/3 WA Mitchell Maint. Schedule)

Key to No's 20, 19 and 18

- Programme of building works completed in 1704
- Programme of building works completed in 1705
- Programme of building works completed in 1707
- Pre 1799 (James Spiller survey drawings) [walling thought to have been built in the 1720's]
- 1895 Works (RIBA Drwg Coll)
- Works of the late 19th Century
- Pre 1936 (RI Ref)
- 1936 Fabric (RI ref:PV1931-36/23 LR Guthrie)
- Between 1936 and 1959
- 1947 Introduction (LR Guthrie)
- Post 1959 (RI ref:PV1959/3 WA Mitchell Maint. Schedule)
- Works of the last 30 years

Fig 7.4 Second floor

Key to No. 21

- Pre 1799 (James Spiller survey drawings) [walling thought to have been built in the 1720's]
- Pre 1799 (James Spiller survey drawings) [walling thought to have been built in the 1750's]
- Pre 1799 (James Spiller survey drawings) [walling thought to have been built in 1760-63]
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- 1838 Vulliamy Works
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Key to No's 20, 19 and 18

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- Pre 1936 (RI Ref)
- 1936 Fabric (RI ref:P/1931-36/23 LR Guthrie)
- Between 1936 and 1959
- 1947 Introduction (LR Guthrie)
- Post 1959 (RI ref:P/1959/3 WA Mitchell Maint. Schedule)
- Works of the last 30 years

Fig 7.5 Third floor

Key to No. 21

- Pre 1799 (James Spiller survey drawings) [walling thought to have been built in the 1720's]
- Pre 1799 (James Spiller survey drawings) [walling thought to have been built in the 1750's]
- Pre 1799 (James Spiller survey drawings) [walling thought to have been built in 1760-63]
- Pre 1799 (James Spiller survey drawings) [walling thought to have been built in 1772]
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- Between 1936 and 1959
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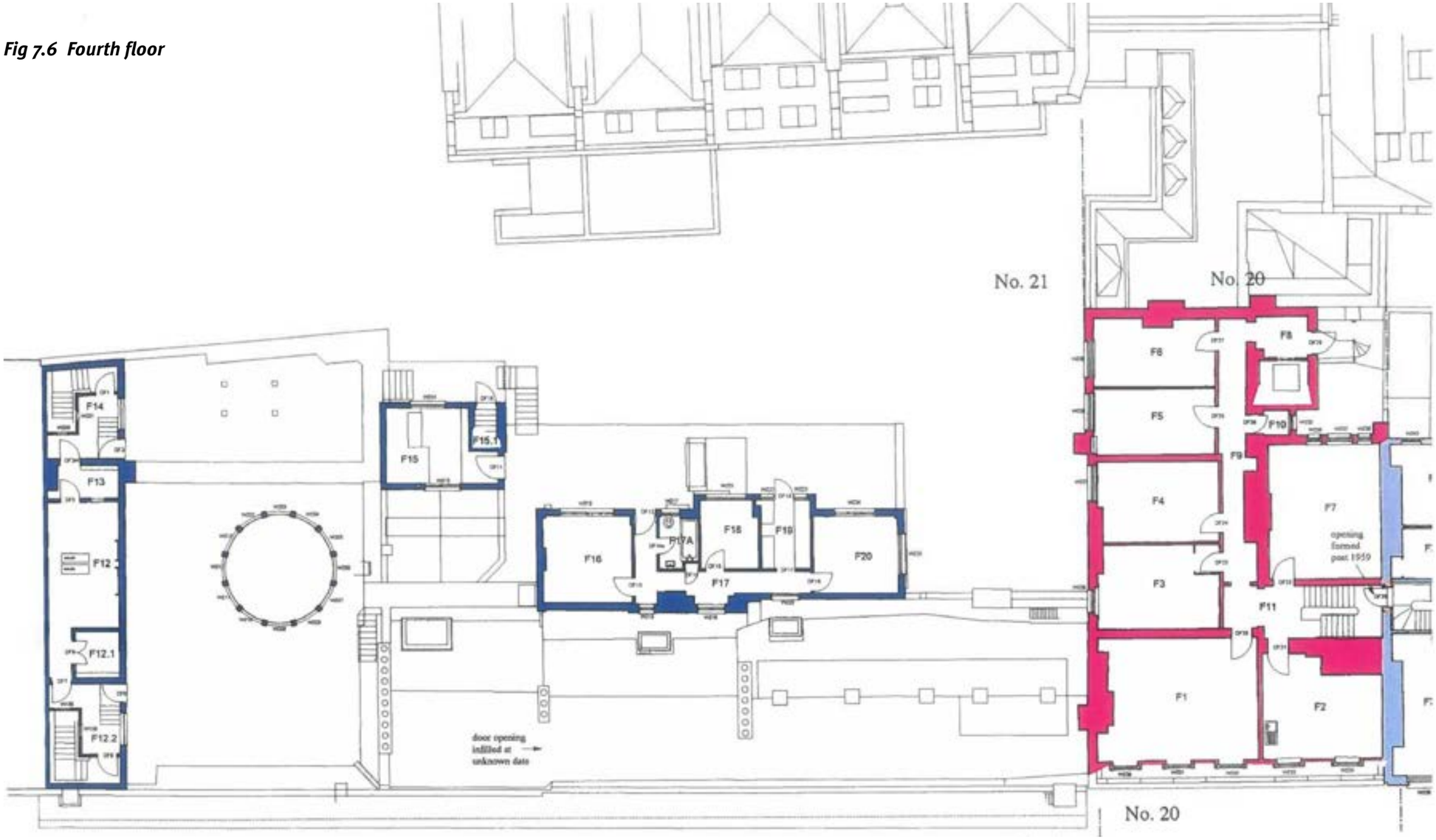
- Pre 1936 (RI Ref)
- 1936 Fabric (RI ref:PV1931-36/23 LR Guthrie)
- Between 1936 and 1959
- 1947 Introduction (LR Guthrie)
- Post 1959 (RI ref:PV1959/3 WA Mitchell Maint. Schedule)
- Works of the last 30 years

Fig 7.6 Fourth floor



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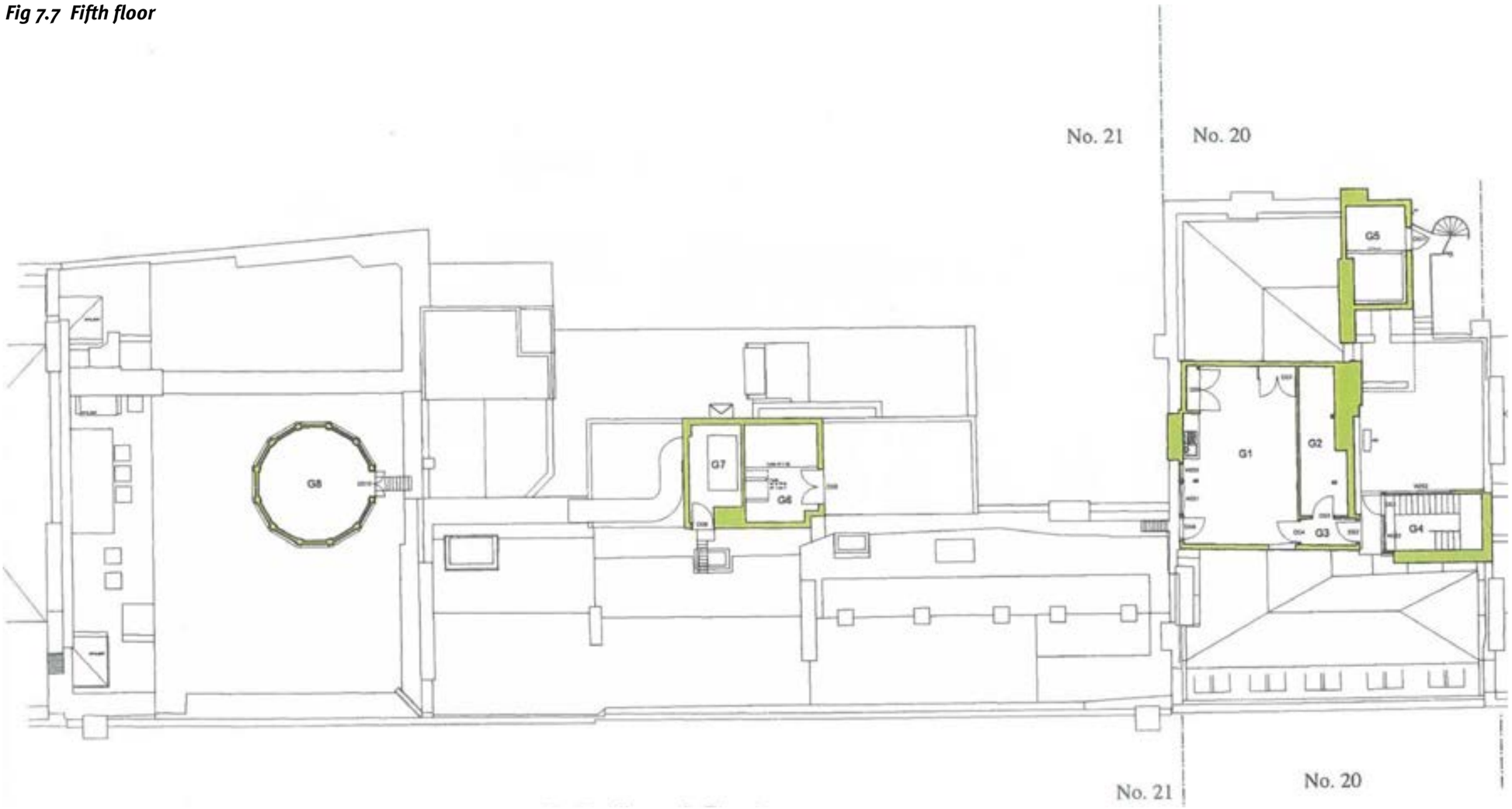
- Pre 1799 (James Spiller survey drawings) [walling thought to have been built in the 1720's]
- 1895 Works (RIBA Drwg Coll)
- Works of the late 19th Century
- Pre 1936 (RI Ref)
- 1936 Fabric (RI ref:P/1931-36/23 LR Guthrie)
- Between 1936 and 1959
- 1947 Introduction (LR Guthrie)
- Post 1959 (RI ref:P/1959/3 WA Mitchell Maint. Schedule)
- Works of the last 30 years

Fig 7.7 Fifth floor



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- Pre 1799 (James Spiller survey drawings) [walling thought to have been built in 1760-63]
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- Pre 1936 (RI Ref)
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- Works of the last 30 years

7.4 Primary sources for the history of the buildings of the Ri

7.4.1 Held by the Ri

Leases. These include leases and agreements relating to the properties dating from the early 18th century to the present. These have been catalogued completely (RI MS RI/1/L).

Managers' Minutes (RI MS MM). A set of 33 bound volumes from 1799 until 1984 record the decisions, and sometimes the discussion, of the Board of Managers, which held ultimate responsibility for running the Ri. They are indexed by name for the 19th century and by name and subject for parts of the 20th. The first 15 volumes, covering the period up till 1903, were published in facsimile between 1971 and 1976 and these volumes are denominated as RI MM.

Visitors' Minutes (RI MS VM). The Board of Visitors, which existed from 1799 until 1984, was a sort of audit committee that had a specific function to report on the state of the building. The *Annual Report of the Visitors* was in effect the Annual Report of the Ri until the *Record of the Royal Institution* was established in 1927.

Plans. The following major groups of plans have been catalogued:

- Contract drawings for the original work of conversion in 1800 (RI MS RI/1/G/G/1)
- Five large plans drawn in 1804 showing the layout after the initial conversion work (RIIC 1575-9)
- A large number of plans, most of which were produced from the 1930s to the 1960s. There are a few earlier examples (RI P).

Building papers. This is a large collection of papers including those relating to the Building Committee from the late 1920s until 1999 (RI MS RI/1/C) and to the works themselves (RI MS RI/1/G). These papers have been roughly sorted and listed to file level.

Images. There is a large collection of images in a variety of media that cast light on the development of the interior of the building. Most important among these are a set of eight watercolours executed by Harriet Moore in the 1850s and a large number of photographs taken by Katharine M Reynolds in the 1890s. The earlier parts of the collection have been thoroughly catalogued and are denominated by RIIC. There exist earlier inventories including the Key Word in Context (KWIC) index.

Personal papers. References to the building occur in the papers of Michael Faraday (especially his *Diary* and *Correspondence*, which have been published), John Tyndall (RI MS JT), William Henry Bragg (RI MS WHB) and Thomas Webster's manuscript autobiography (RI MS RI CG/4/1).

7.4.2 Held by the Royal Institute of British Architects

Webster plans. The RIBA Drawing Collection holds a large number of plans and sketches associated with Thomas Webster, who undertook the original design work for converting No 21 into a scientific institution. All this material is listed in Jill Lever, *Catalogue of the Drawings Collection of the Royal Institute of British Architects, T-Z*, London, 1984, pp. 201-3. This collection includes sketch plans for the temporary Lecture Theatre (RIBA SD 21-34), early sketch designs for the conversion work (RIBA SE 1/1) and presentation drawings (RIBA SB 58/1).

Flockhart plans. The RIBA Drawing Collection holds 55 drawings by William Flockhart from the mid-1890s relating to his work for the remerging of Nos 20 and 21, and for creating the Davy-Faraday Research Laboratory in No 20 (RIBA RAN 51/H/2/1-55).

Grey Books. This is a running list of buildings undertaken by members of RIBA.

7.4.3 Held by the Sir John Soane Museum

Five as-existing floor plans of No 21 as purchased in 1799 drawn by James Spiller (Soane 57/7/44-8) and some 1820 sketches by Soane relating to the library.

7.4.4 Held by the City of Westminster Archives Centre (CWAC)

- Ratebooks of the Vestries of St Martin's in the Fields and from 1725 of St George, Hanover Square, detailing who occupied 18-21 Albemarle Street from 1704 until 1900 (when the Vestries were replaced by the City of Westminster Council). Thereafter street directories have been used
- A map of 1725 showing the newly formed Parish of St George Hanover Square, commissioned by the new Vestry
- A map showing where bombs and rocket weapons fell on Westminster during the Second World War
- Electoral registers of the 20th century, listing those resident in the area.

7.4.5 Held by the Hertfordshire Archives and Library Service

- The papers of Lord Grantham (HALS MS D/E Na)
- Egerton Family papers (HALS MS AH).

7.4.6 Held by the Corporation of London Record Office (CLRO)

As the freeholder of No 21, the Corporation of London has an extremely good collection of lease documents and plans relating to the site going back to the reign of Henry VIII, from whom it first leased the property. The collection includes the following plans:

- Comptroller's City Lands Plan 411, 1694
- Comptroller's City Lands Plan 228, early 18th century
- Plan H6.1, c.1733
- Comptroller's City Lands Plan 190a, c.1760
- Comptroller's City Lands Plan 565, 25 July 1763
- Comptroller's City Lands Plan 386a, 7 February 1764
- Surveyor's City Lands Plan 1277, c.1808

7.4.7 Held by the London Metropolitan Archives (LMA)

- Plans and a file relating to planning applications during the 20th century. These records are by no means complete and it is clear that much weeding was undertaken at the time they were transferred to the LMA on the demise of the Greater London Council (LMA GLC/AR/BR /19/4171, /23/14124 and /7/4171)
- Photographs taken for the London County Council Survey of London in 1949.

7.4.8 Held by the National Monuments Record

Photographs of No 21 taken as part of the 1941 programme to record buildings in case of damage or destruction by enemy action.

7.5 Select list of publications relating to the Ri and its setting

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7.5.2 Recent management documents

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7.5.3 Site-related statutory and other documents

Pre-inquiry Unitary Development Plan – City of Westminster (29 August 2002)

Mayfair Conservation Area: General Information Leaflet Development Division, City of Westminster Department of Planning and Environment (1996)

Listing descriptions for 18-21 Albemarle Street

7.6 Historic England official listing for No 20

Historic England

Part of Royal Institution

Listed on the National Heritage List for England. **Search over 400,000 listed places**

(https://historicengland.org.uk/listing/the-list/)

Official list entry

Heritage Category: **Listed Building**

Grade: **I**

List Entry Number: **1066520**

Date first listed: **09-Jan-1970**

List Entry Name: **Part of Royal Institution**

Statutory Address 1: **PART OF ROYAL INSTITUTION, 20, ALBEMARLE STREET W1**

This List entry helps identify the building designated at this address for its special architectural or historic interest.

Unless the List entry states otherwise, it includes both the structure itself and any object or structure fixed to it (whether inside or outside) as well as any object or structure within the curtilage of the building.

For these purposes, to be included within the curtilage of the building, the object or structure must have formed part of the land since before 1st July 1948.

Understanding list entries *(https://historicengland.org.uk/listing/the-list/understanding-list-entries/)*

Corrections and minor amendments *(https://historicengland.org.uk/listing/the-list/minor-amendments/)*

Location

Statutory Address: **PART OF ROYAL INSTITUTION, 20, ALBEMARLE STREET W1**

The building or site itself may lie within the boundary of more than one authority.

County: **Greater London Authority**

District: **City of Westminster (London Borough)**

Parish: **Non Civil Parish**

National Grid Reference: **TQ 29023 80601**

Details

TQ 2980 NW CITY OF WESTMINSTER ALBEMARLE STREET W1

70/20 No 20 (part of Royal 9.1.70 Institution)

GV I

Terrace house, late C18, remodelled internally early and late C19. Yellow stock brick, slate roof. 4 storeys,

basement and dormered mansard. 5 windows wide. Altered ground floor with 3 bay early to mid C20 shop front and semicircular arched doorway to right with fanlight, in stucco surround with consoles carrying entablature. Upper floors have revealed sash windows, no glazing bars, under flat gauged arches. Moulded stone cornice over 2nd floor. Parapet with coping. Area railings of cast iron with urn finials. Early C19 interior with cornices, doorcases, stone staircase with wrought iron balustrade, chimneypiece with Wedgwood plaque brought in from No 32 Soho Square, Sir Joseph Banks' house. No 20 was incorporated into the Royal Institution in 1894.

Listing NGR: TQ2902380601

Legacy

The contents of this record have been generated from a legacy data system.

Legacy System number: **208513**

Legacy System: **LBS**

Legal

This building is listed under the Planning (Listed Buildings and Conservation Areas) Act 1990 as amended for its special architectural or historic interest.

Map

This map is for quick reference purposes only and may not be to scale. This copy shows the entry on 15-Apr-2026 at 07:10:55.

7.7 Historic England official listing for No 21

Historic England

The Royal Institution

Listed on the National Heritage List for England. **Search over 400,000 listed places**

(https://historicengland.org.uk/listing/the-list/)

Official list entry

Heritage Category: **Listed Building**

Grade: **I**

List Entry Number: **1066521**

Date first listed: **24-Feb-1958**

List Entry Name: **The Royal Institution**

Statutory Address 1: **THE ROYAL INSTITUTION, 21, ALBEMARLE STREET W1**

This List entry helps identify the building designated at this address for its special architectural or historic interest.

Unless the List entry states otherwise, it includes both the structure itself and any object or structure fixed to it (whether inside or outside) as well as any object or structure within the curtilage of the building.

For these purposes, to be included within the curtilage of the building, the object or structure must have formed part of the land since before 1st July 1948.

Understanding list entries

(https://historicengland.org.uk/listing/the-list/understanding-list-entries/)

Corrections and minor amendments

(https://historicengland.org.uk/listing/the-list/minor-amendments/)

Location

Statutory Address: **THE ROYAL INSTITUTION, 21, ALBEMARLE STREET W1**

The building or site itself may lie within the boundary of more than one authority.

County: **Greater London Authority**

District: **City of Westminster (London Borough)**

Parish: **Non Civil Parish**

National Grid Reference: **TQ 29004 80621**

Details

TQ 2880 NE, CITY OF WESTMINSTER ALBEMARLE STREET W1 2980 NW 69/144 ; 70/21 24.2.58 No 21 (The Royal Institution)

GV I

Originally a terraced town house acquired for the Royal Institution in 1799. Built in 1756, brick, 3 storeys, 12 bays and then only one bay deep. Altered for Institution by Thomas Webster in 1799 and then in 1838 given a commensurately grand front by Lewis Vulliamy - regularised as 13 bays and rendered with a screen of giant engaged fluted Corinthian columns, on low pedestals, through the 3 storeys. Plain central square headed doorway with cornice on consoles. Revealed glazing bar sash windows, flat arches. Deep crowning entablature with projecting cornice. Stone balustraded area. The interior altered for the Institution by Webster with George Saunders as consultant: the staircase up to 1st floor retained from mid-C18 house, stone with wrought iron balustrade returned to galleried landing (plasterwork to walls and ceiling of 1928); semicircular shaped lecture theatre of c. 1800 with gallery; 'Conversation Room' (i.e. Scientific Gentleman's Library); Faraday's magnetic laboratory; statuary marble chimneypiece etc. Otherwise numerous alterations and embellishments in 1928-30 by Rome Guthrie. Association with Humphrey Davy and Michael Faraday etc.

Listing NGR: TQ2900480621

Legacy

The contents of this record have been generated from a legacy data system.

Legacy System number: **208514**

Legacy System: **LBS**

Legal

This building is listed under the Planning (Listed Buildings and Conservation Areas) Act 1990 as amended for its special architectural or historic interest.

Map

This map is for quick reference purposes only and may not be to scale. This copy shows the entry on 14-Apr-2026 at 21:16:52.