

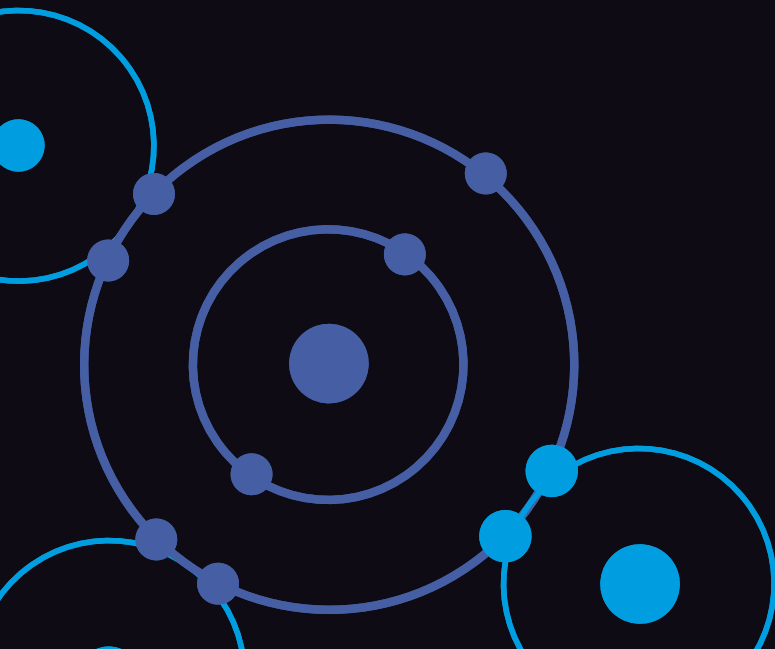
# The Historical Collection

at The  
Chemistry  
Centre



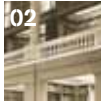

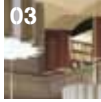



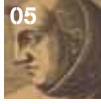


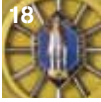









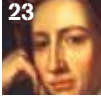




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# Introduction to the Library

Founded in 1841 as the Chemical Society, the Royal Society of Chemistry is one of the oldest and most eminent chemical societies in the world. Ever since its inception, the library has been the guardian of its extensive historical archive.

The archival collection is primarily composed of materials from the Chemical Society which was further augmented by the collections of the other societies that came together by Royal Charter to form the Royal Society of Chemistry in 1980:

- The Chemical Society (founded 1841)
- The Royal Institute of Chemistry (founded 1877)
- The Faraday Society (founded 1903)
- The Society for Analytical Chemistry (founded 1874)

The '...formation of a Chemical Library and Museum'<sup>1</sup> was one of the three original objects of the Chemical Society in 1841 and in 1842, the Bye Laws adopted at the Annual General Meeting stated:

'The Chemical Society of London is instituted for the advancement of Chemistry and those branches of Science immediately connected with it, for the communication and discussion of discoveries and observations relating to such subjects: The formation of a Library of scientific works and of a Museum of Chemical Preparations and Standard Instruments, are also ulterior objects of the Society.'<sup>2</sup>

The idea of creating a museum was relatively short-lived; a number of interesting articles were acquired for its collection but in 1883, President Sir Joseph Gilbert reported on the decision to discontinue the museum and return the items back to their original donors. However, in the same meeting, Sir Joseph reported on the successful growth of the library:

'Of the Library, a much more favourable account can be given. . . The total number of volumes catalogued in 1873 was 3,540, and there have since been added to the Library 3,260 volumes, making in all, at the present time, 6,800 volumes.'<sup>3</sup>

The library collection has been in a state of expansion ever since and as of January 2010, the library contained approximately 30,000 books and over 2,000 journal titles (containing numerous volumes per title).

The library has moved location a number of times since 1841. Initially, the library was located with the Royal Society of Arts, then in rooms on the Strand before coming to Burlington House in 1857 where it occupied the same space as the Royal Society and the Linnean Society. In 1873, the Chemical Society took up residence in part of Burlington House's East Wing where it stayed for the next 95 years. When the Royal Society moved out to Carlton Terrace in 1967, the Chemical Society and its library moved into its current space. From May 2008 until August 2009, the contents of the library were again moved, temporarily, into external storage whilst an extensive refurbishment of the space was undertaken.



02 The Chemical Society Library (before 1967)



03 The Chemical Society/Royal Society of Chemistry Library (1967-2009)



04 The Royal Society of Chemistry Library (2009- )

# 1. Books & Journals



## History of Chemistry

One of the aims of the RSC's Chemistry Centre at Burlington House is to promote the history of chemistry and so in the summer of 2009, an area dedicated to the history of chemistry was created as part of the refurbishment of the library. This section within the library brings together all the books and journals relating to this area of interest that are immediately accessible to walk-in visitors. Other, older and more valuable items are kept securely elsewhere throughout the building, the majority of these being in the Hinshelwood Room.

The following are among the sub-categories covered within this section:

- Alchemy
- Chemist biographies
- History of chemical industry, as well as of individual organisations
- History of the Royal Society of Chemistry (and its precursor societies)
- History of other chemical societies
- History of sub-divisions of various chemical sciences, e.g. chromatography, separation science, physical chemistry, atomism

The section on chemist biographies is particularly extensive and contains over 350 items on most of the well-known scientists and chemists as well as many of the not-so-famous.

The following serial titles are also kept in the History of Chemistry section:

- Ambix (1937- )
- Biographical Memoirs of Fellows of the Royal Society (1932- )
- Bulletin of the History of Chemistry (1992- )
- Chemical Heritage (1992- )
- Chemistry in Britain (1965-2003)
- Chemistry & Industry (1933- )
- Plastiquarian (1996- )
- Le Prix Nobel (1901- )



05 Albertus Magnus



06 Raymundus Lullius

## Historical Books

The books in the Historical Collection are largely kept in the Hinshelwood Room, of those 3,500 plus items, the following are a selection of the most notable. The first two items are part of the Roscoe Collection, more information on this collection can be found in a subsequent section looking at the RSC's Special Collections:

### **De Secretis Mulierum (1505) by Pseudo Albertus Magnus**

The oldest book in the collection is a copy of 'De Secretis Mulierum' (Women's Secrets) by Pseudo Albertus Magnus, dated 1505.

Albertus Magnus was a Dominican friar, born in Bavaria (between 1193 and 1206) and died in 1280. He wrote numerous volumes on a number of scientific disciplines as well as on religion. 'De Secretis Mulierum' was compiled from his various manuscripts in the 13th or 14th century by one of Magnus' disciples. The identity of 'Pseudo Albertus Magnus' is unknown and his representation of Magnus' ideas isn't thought to be entirely accurate.

In essence, this book was written by a monk as an instruction to other (celibate) monks on the facts of life and childbirth. The content erroneously details various notions about the female reproductive system and subsequently portrays women in an extremely bad light. This period in time was one which held much persecution of women, most drastically exhibited in the form of witch-hunting.

An English translation of this book, 'Women's Secrets' by Helen Rodnite Lemay is available in the library's History of Chemistry section.

### **Ars Magna Generalis et Ultima (1517) by Raymundus Lullius**

The library's collection holds several items attributed to Raymundus Lullius from the 16th and 17th Centuries, among these is 'Ars Magna Generalis et Ultima' which translates as 'The Universal Art' or 'The Ultimate General Art'.

Raymundus Lullius (1232-1315) was a prolific Spanish writer and philosopher. The focus of Lullius' life was as a Christian missionary and this book employs methods to convert people from other faiths into Christianity. However, this major work also has much to say in the areas of science and education.





07 John Rudolf Glauber

### The Sceptical Chymist (1680) by Robert Boyle

Regarded as Robert Boyle's (1627-1691) finest and most notable work, the first edition was published in 1661, this second edition was published in 1680. Due somewhat to the ideas written in this book, Boyle is regarded as the 'Father of modern chemistry', though this term has also been used to refer to Antoine Lavoisier (1743-1794). The distinction between the two men sharing the same epithet is that Boyle's work marked the beginning of the development of modern chemistry whilst Lavoisier's works marked the culmination of that development.

Boyle promoted the idea of chemistry being regarded as a separate science and to no longer come under the umbrella of alchemy or medicine. In this book, he also promotes the idea that the elements should no longer be limited to the classical four elements of earth, fire, air and water.

### Glauber Works (1689) by John Rudolf Glauber

The most valuable book in the collection is 'Glauber Works: the works of the highly experienced and famous chymist John Rudolf Glauber', 1689. The full title being 'The works of the highly experienced and famous chymist, John Rudolf Glauber: containing, great variety of choice secrets in medicine and alchymy in the working of metallick mines, and the separation of metals. Also, various cheap and easie ways of making salt-petre, and improving of barren-lane, and the fruits of the Earth. Together with many other things profitable for all the lovers of Art and Industry.' This is a first edition in English of Glauber's collected works and was signed and presented to the Chemical Society by Michael Faraday.

John Rudolf Glauber (1603-1668) was a German-Dutch alchemist and chemist; he's sometimes been referred to as one of the first chemical engineers due to his improvements in certain chemical processes. In 1625, he discovered sodium sulphate (a.k.a. Glauber's salt). He was also the first to synthesize and isolate antimony trichloride, arsenic trichloride, tin tetrachloride and zinc chloride.

### **Conversations on Chemistry (1807) by Jane Marcet**

Jane Marcet (1769-1858) commonly became known as Mrs Marcet through her writing of introductory texts on science, her most famous being 'Conversations on Chemistry'. The first edition was published in 1805 and summarised the lectures of Humphry Davy, the RSC holds a copy of the second edition, published in 1807. The book took the form of a conversation between a teacher and her two pupils. Michael Faraday credited 'Conversations in Chemistry' as being one of his early inspirations. The complete 10th edition from 1825 was digitised by the RSC and is available to view via the website.

## Historical Journals

The journal collection covers approximately 2,000 titles over 4 centuries and with many volumes per title, the total number of volumes runs into the tens of thousands. Due to space constraints, the collection is housed not only at Burlington House but at the RSC's Cambridge office and an external storage facility.

One notable title held, 'Annalen der Physik' (1799-1948) is where Einstein published many of his papers including his 'Special Theory of Relativity' in 1905.<sup>4</sup>

The collection covers all Chemical Society, Royal Institute of Chemistry, Faraday Society and Royal Society of Chemistry journals ever published as well as the journals of other societies such as:

- Journal of the American Chemical Society (1879- )
- Journal of the Society of Chemical Industry (1882- )
- Journal of the Society of Dyers and Colourists (1890- )
- Philosophical Transactions of the Royal Society of London (1685-1975)

The Chemical Society's extensive collection and, most notably, its journal collection took on national importance during the First World War. The Librarian of the time, F.W. Clifford made mention of this in 'The Library Association Record':

'The activities of the War caused a considerable demand upon the resources of all libraries of a technical character, and that of the Chemical Society was frequently called upon by the War Office and other Government Departments for works which could not be found elsewhere.'<sup>5</sup>

The Chemical Society had built up a very comprehensive collection since 1841, this included many European titles. As a consequence, the research conducted by countries, which at the time of the First World War were regarded as enemies, was available to the British Government in the Chemical Society library:

'...important works of foreign origin were to be found upon the library shelves, and were of the greatest possible value to the various War Departments and to manufacturers who were striving to make essential products hitherto made in what had become an enemy country.'<sup>5</sup>

## Special Collections

### The Sugar 'J P Ogilvie' Collection

James Pettigrew Ogilvie (1881-1953) was the son of a well-known sugar refiner and became an authority on the subject of sugar himself, authoring many books and journal titles in the area as well as working within the sugar industry. He became a Fellow of the Chemical Society in 1912 and later presented a number of valuable books on sugar chemistry to the Society. The collection is comprised of 347 books and pamphlets; the oldest item is from 1752 by E Comyns, 'Essay on sugar, proving it the most pleasant, salubrious and useful vegetable to mankind; especially as refin'd and brought to its present perfection in England with remarks on a method lately published of procuring a fermentation in the West Indies'.

### The Roscoe Collection

The Roscoe Collection was donated to the Chemical Society by Sir Henry Roscoe (1833-1915) in 1906; a catalogue of the items donated was also given to the Society to accompany the collection.

The collection consists of approximately 100 items on alchemy and early chemistry, the most notable item being 'De Secretis Mulierum'. The collection also includes manuscripts of lectures given by Sir Henry Roscoe; his notes on solar chemistry work; letters written to him by a number of his peers and his notebook from 1849. The many volumes of letters in the collection includes correspondence with contemporaries such as Robert Bunsen, Michael Faraday, Dmitri Mendeleeff and Louis Pasteur as well as with a number of Presidents of the Chemical Society and the Royal Institute of Chemistry.

Henry Roscoe was also the uncle of Beatrix Potter and she supplied a sketch for his book 'The Life and Experiences of Sir Henry Enfield Roscoe'. The sketch depicting a mouse reading, sat beneath a lit Bunsen burner, is sub-titled 'A Dream of Toasted Cheese' and has the label ' $\text{NH}_3$  - The peculiar pungent smell of this compound is noticed if we heat a bit of cheese in a test tube. Roscoe and Lunt'.

### The Sir Frederick Abel Papers

Sir Frederick Augustus Abel (1827-1902) was an English chemist and became the 15th President of the Chemical Society (1875-1877) and the 2nd President of the Royal Institute of Chemistry (1880-1883). His area of expertise was in explosives and in 1889 he invented Cordite with Sir James Dewar.

In January 2010, a collection of his papers was donated to the RSC by his family. The collection includes two of his diaries (1854 & 1875), letters of condolence on his death and many of his personal letters. Some of the letters pertain to his work in the explosives industry while many are correspondence between him and his social and professional contemporaries: Sir William Armstrong, Sir James Dewar, The Duke of Devonshire, Michael Faraday, Thomas Graham, Carl Haag, A W von Hofmann, William Odling and William Rockefeller as well as the private secretaries acting on behalf of Queen Victoria and the Prince of Wales (latterly King George V).

### The Nathan Collection

The Nathan Collection, bequeathed by Colonel Sir Frederic Lewis Nathan, KBE (1861-1933), in 1934, comprises 975 items including books, pamphlets and folio-size posters on explosives and firearms dating from 1598 to 1920.

The Chemical Society minutes of council in 1934 recounted the note that Nathan made in his will with regards to his bequest:

'I should like the books etc. on explosives, small arms and artillery kept together as the Nathan Collection, but I do not lay this down as a condition of acceptance if such a condition in any way conflicts with the library arrangements of the Society.'<sup>6</sup>

As with the Roscoe Collection, a full catalogue of the items donated was compiled to accompany the collection. Many of the pamphlets in the collection relate to the manufacture and use of gunpowder, below is a selection of some of the items in the collection:

- Charles II 1666, *A proclamation for the effectual prosecution of His Majesties Commission for Providing and Making of Salt-peter and Gun-powder*, 16th June 1666, London. [broadsheet]
- Anon 1649, *Deaths master-peece [sic]; or, a true relation of that great and sudden fire in Towerstreet, London; which came by the firing of gunpowder on Friday 4th of January, 1649*, Francis Grove, London.

Another item in the collection is a volume called 'Acts of Parliament' containing a number of Parliamentary Acts from 1652 to 1883. One Act contained within this volume is:

- 1719. 'An act for preventing the mischiefs which may happen by keeping too great quantities of gunpowder in or near the Cities of London and Westminster, or the Suburbs thereof.'

Col. Nathan joined the Royal Artillery in 1879 and in 1886, took up an appointment at the Royal Arsenal in Woolwich. As with Sir Frederick Abel, Col. Nathan worked in the explosives industry. His obituary states the importance his work had on chemical industry:

'It is not too much to say that his influence on the growth and development of a large concern such as Nobel's Explosives Company was profound, and that systems of organisation which he introduced there have been widely adopted in the Chemical Industry of to-day.'<sup>7</sup>

### **Professor Francis Camps/Professor Ann Robinson**

Francis Camps (1905-1972) was a famous forensic scientist and toxicologist and was involved in many important murder trials in the 20th century, including being an expert witness at the trials of John Christie and Dr John Bodkin Adams. His collection of forensic chemistry and medicinal toxicology books, as well as the Swiney Prize he was awarded in 1969, were donated to the RSC by his wife Professor Ann Robinson in 1999.

### **Davy Bookcase**

In 1919, a bequest by a late member of the Royal Institute of Chemistry (and Chemical Society), George Holloway, was noted in the Institute's 'Report of the Council':

'The Council and Library Committee have pleasure in recording their thanks to donors of books, journals and pamphlets during the year. The bequest of the late Mr. George T. Holloway of books formerly in the possession of Sir Humphry Davy, John Davy, and Lady Davy has already been reported. The bookcase for the purchase of which Mr. Holloway also left the Institute a sum of £25 will, it is hoped, shortly be placed in the Library.'<sup>8</sup>

The Davy collection includes items from such notable chemists as Humphry Davy himself, William Ramsay, Antoine Lavoisier, John Dalton, Justus von Liebig, Lyon Playfair and William Nicholson. It also contains a small collection of the 'Memoirs of the Royal Society' from the first half of the 18th Century.



**08** Sir William H. Perkin, aged 14

George Holloway (1863-1917) was a metallurgical and mineral chemist, working in Canada and in East London. He had trained under Sir Edward Frankland and later under Sir T. E. Thorpe.

The bookcase and its entire contents underwent restoration in 2009.

### **Perkin Memorabilia**

The Perkin Memorabilia is a collection of items pertaining to Sir William Henry Perkin (1838-1907) on loan to the RSC by Perkin's great-granddaughter from March 1997. Among the items are many press-cuttings, letters patent, telegrams and photographs of Perkin, including one Perkin took of himself aged 14.

Perkin was an English chemist born in East London; he entered the Royal College of Chemistry aged 15 and discovered the first aniline dye, Mauveine, at the age of 18. Perkin's discovery set off the subsequent discovery of other new aniline dyes which led on to factories being established to produce them. Another result of his discovery was the increase in the processing of coal tar, the main source of material for his dye. Perkin was widely lauded in his later life (including his knighthood in 1906) and was also President of the Chemical Society from 1883 to 1885.

## 2. The RSC Collection





## History of the Royal Society of Chemistry

The History of Chemistry section within the library contains the following items relating to the history of the Royal Society of Chemistry and its precursors:

- Chemical Society 1891, 'History of the Development of the Society', The Jubilee of the Chemical Society, pp. 113-292.
- Chemical Society 1948, A Record of the Centenary Celebrations 1947, Chemical Society, London.
- Chirside, RC & Hamence, JH 1974, The 'Practising Chemists' A History of the Society for Analytical Chemistry 1874-1974, Society for Analytical Chemistry, London.
- Faraday Society 1954, The First Fifty Years 1903-1953, Faraday Society, London.
- Moore, TS & Philip, JC 1947, The Chemical Society 1841-1941: A Historical Review, Chemical Society, London.
- Pilcher, RB 1914, History of the Institute: 1877-1914, The Institute of Chemistry of Great Britain and Ireland, London.
- Russell, CA, Coley, NG & Roberts, GK 1977, Chemists by Profession: the origins and rise of the Royal Institute of Chemistry, Open University Press, Milton Keynes.
- Sutton, L & Davies, M 1996, The History of the Faraday Society, Royal Society of Chemistry, Cambridge.
- Thomas, JDR 1999, A History of the Analytical Division of the Royal Society of Chemistry 1972-1999, Royal Society of Chemistry, Cambridge.
- Whiffen, DH & Hey, DH 1991, The Royal Society of Chemistry: The First 150 Years, Royal Society of Chemistry, London.



**09** The Jubilee Album  
(front cover)

One very special volume within the Historical Collection is The Jubilee Album. This album was presented to the Chemical Society at the Jubilee Meeting in 1891 to mark its fiftieth anniversary.

Robert Warington, one of the founder members of the Chemical Society in 1841, kept 70 of the 77 letters that were sent inviting people to join the Society. Portraits of forty-four of the original members of the Society are included in the album presented by Warington's son, along with a copy of the history, the original bye-laws and the constitution:

'It fortunately happened that my father preserved various papers relating to the formation of the Society; these have been arranged and bound, and my pleasant task is now to present them to the Society. In this book we have the original letters written by gentlemen in answer to the invitation sent out by my father before the primary meeting of the 23rd February, and to the more extensive circular sent between the 23rd February and the general meeting on the 30th March, 1841. To make the collection more complete, we have endeavoured to add portraits of some of the Original Members. The portraits are, of course, copies, but the whole of them have been taken in platinotype; I trust, therefore, that they will remain a permanent record of the founders of the Society.'<sup>9</sup>

## Online Journal Archive

The library holds a physical copy of every journal ever produced by the RSC and its precursor societies and has endeavoured to digitise this complete collection. In 2004, the RSC Journal Archive was launched on the RSC website. The archive contains almost 1.4 million pages of digitised material from RSC journals stretching back to 1841 with the 'Memoirs of the Chemical Society of London'.

The following is a small selection of the titles covered (some of these titles are the most recent names of publications that have had different names previously):

- Analyst (1876-2004)
- Annual Reports (1904-2004)
- Chemical Communications (1965-2004)
- Chemical Society/Royal Institute of Chemistry Reviews (1947-2004)
- Dalton Transactions (1966-2004)
- Faraday Discussions (1947-2004)
- Journal of the Chemical Society (1841-2002)

## Council Minutes

The council minutes date back to the very first meeting and formation of the Chemical Society in 1841. The RSC also inherited minutes and proceedings of the other societies that merged with the Chemical Society in 1980, namely the Faraday Society, the Royal Institute of Chemistry and the Society of Analytical Chemistry, though these inherited collections are by no means comprehensive. The minutes are often a valuable research tool in finding information related to the Society's activities during different periods throughout its history, they have also been of great help during the research of this booklet in finding background information pertaining to many of the works and collections donated to the Historical Collection.

## Past Members

Since its early days, the Chemical Society proceedings have published obituaries of members. This was a more comprehensive activity when membership to the Society was in the 100's (77 in 1841, growing to 1,754 in 1891), however, due to the massive growth of the Society (membership in 2010 being over 46,000), the publication of obituaries has by necessity been confined to chemists with more prominent public profiles.

The earlier obituaries provide an interesting background into not only the lives of the individual chemists but also to the world they lived in. For example, during the First and Second World Wars, a number of members and Fellows of the Chemical Society and the Royal Institute of Chemistry were taken from their lives of academia and sent to war, many were killed in action:

2nd Lieut. Stuart Wycliffe Goodwin, M.C., Border Regiment, was killed in France on March 31st, 1918, in his twentieth year.'

Proceedings of the Institute of Chemistry, 1918 <sup>10</sup>

'2nd Lieut. George William Moore. . . He was killed in action on March 28th, 1918, in France. His commanding officer wrote on his death:- "During a most critical phase of the battle he fought the gun with great gallantry and inspired the men with his own high standard of courage."

Proceedings of the Institute of Chemistry, 1918 <sup>11</sup>

'Pilot Officer William Kelman Burr Thomas was reported missing in February, 1941, after air operations over Germany, and it was thought that he might have been taken prisoner, but information has lately been received that he lost his life while on a raid.'

Journal and Proceedings of the Institute of Chemistry, 1942 <sup>12</sup>

'Sergeant Observer (Navigator and Bomber) Leonard Manchip, R.A.F., a Registered Student of the Institute, was reported "missing" in May, 1941, and is now presumed to be dead. Born on 2nd November, 1919, at Gillingham, Kent, he was educated at Sir Walter St. John's School, Battersea, and on winning a scholarship became registered as a Student of the Institute at Keble College, Oxford, in 1939. He had been serving with the R.A.F. since the outbreak of war.'

Journal and Proceedings of the Institute of Chemistry, 1942 <sup>13</sup>



**10** Pro Patria Memorial



**11** Major Herbert Garland  
(image courtesy of Chris Mitchell)

The Royal Society of Chemistry has a memorial 'Pro Patria' on its main stairway, dedicated to the chemists who died in the First World War. It also recognises the efforts of Lt Col Edward Harrison in the part he played in the development of the gas mask.

A Genealogical Enquiries Database was launched online in 2009 and contains links and references to thousands of obituaries and historical profiles of chemists. Often, these links are either to full-text, online documents (many viewable at no cost), or to publications available within the library.

With the archive of past members' information at its disposal, the library often undertakes genealogical research on behalf of members' descendants or for academic researchers. One such enquiry came in late 2009 when the grandson of a former Fellow of the Chemical Society sent a request for further information to the library. With the information held in the RSC's archives and further research with the Imperial War Museum and the National Archives, a more complete picture of this man's life was able to be built. Herbert Garland (1882-1921) was a self-taught metallurgist, publishing articles in the Cairo Scientific Journal and stationed in the Middle East during the early years of the 20th Century. During the First World War, Garland worked with T.E. Lawrence and became the first British advisor to help the Arabs successfully derail a Turkish train. Awarded the Military Cross, the Third Order of El Nahda, the Fourth Order of the Nile and the OBE, Garland fell ill and died at the tragically young age of 38, days after returning home. In 1927, his book 'Ancient Egyptian Metallurgy' was posthumously compiled and published by Professor C. O. Bannister.

## Publications

The Royal Society of Chemistry is one of the leading scientific publishers and it is the archives' responsibility to keep a copy of everything ever published by the RSC and its constituent societies. The library has a separate RSC Reference collection containing these items. As well as the individual titles dealing with such a diverse range of topics from the 'The Science of Ice Cream' and 'The Science of Chocolate' to 'Carbon Capture' and 'Rheology for Chemists', the RSC produces 'Special Publications' and a number of different series titles under the umbrella of 'Specialist Periodical Reports'.

Starting in 1912, the Royal Institute of Chemistry and the Chemical Society produced a number of series of pamphlets: the 'RIC Lecture Series', 'Lectures, Monographs and Reports' and 'Monographs for Teachers'. The wide range of topics covered is illustrated by the following selected list:

- Alchemists in Art and Literature
- British Coinage
- A Century of Chemistry: 'From Boyle to Priestley'
- Chemistry and the Petroleum Industry
- Coal as a Raw Material
- The Development of the Chemistry of Commercial Synthetic Dyes (1856-1938)
- Food, Chemistry and Nutrition
- Lecture on Chemistry and Cancer
- Lectures on Cellulose
- Ludwig Mond, FRS: 1839-1909
- The Precious Metals
- Principles of Electrolysis
- A Thermodynamic Bypass

All books and journals now produced by the RSC are digitised and available via the website; the RSC is also endeavouring to retrospectively digitise all publications previously produced.

## Miscellaneous

Among the other items in the RSC Collection are:

- Documents on the discussions leading to the formation of the Chemical Society, memoranda and articles of association, and the financial records of most of the constituent societies;
- Original Victorian charters and subsequent Royal charters from each of the founding bodies;
- The architect's plans of Burlington House from the mid-19th century, outlining the original decor; and
- Congratulatory scrolls, presentation volumes and artefacts from sister societies worldwide for various anniversaries, often very large and decorative

### 3. Artefacts & Images







12 Faust in his Laboratory (1538)

## Image Collection

The vast majority of the Image Collection is composed of portraits and photographs of many famous chemists and scientists as well as of all the former presidents' of the RSC's constituent societies. There are also a number of interesting images depicting alchemists in their laboratories and satirical sketches from different periods.

The image collection is composed of glass slides, photographs, paintings, sketches and prints (many of these being available digitally). The oldest image in the collection is 'Faust in his Laboratory' (1538).



13 Dr Sanctorius in Weighing Machine at Table (1749)

### Dr Sanctorius in Weighing Machine at Table (1749)

The image shown here is an engraving from Dr Sanctorius' book, 'Ars de Statica Medicina'.

Dr Santorio Sanctorius (1561-1636) was an Italian scientist who performed various experiments with regards to temperature, perspiration and weight. This image depicts the 'weighing chair' he constructed for one of his major experiments. For thirty years he weighed himself and everything that went in to and came out of his body. He compared the weight of what he ate against his waste products and produced the theory of 'perspiratio insensibilis' or 'insensible perspiration' to account for the difference.



14. Discoverers of Gunpowder

### Discoverers of Gunpowder

This image depicts the German monk Berthold Schwartz discovering gunpowder, the devil is watching over him as he does so. Some believe that Schwartz was the first European to discover gunpowder in the first half of the 14th Century, though others maintain that there are records of gunpowder use in Europe prior to this.



15. Magnetic Dispensary, 1790

### Magnetic Dispensary

This print by Samuel Collings (1790) is a satirical take on the practice of group therapy advocated by Franz Anton Mesmer (1734-1815).

The image shows a group of individuals displaying the magnetic effect of holding on to the metal bars. The foreground of the picture shows a dog urinating on an open book, one side of the book reads 'Magnetic Effluvia' the other 'List of Cures'. Next to the book are discarded packets of snuff.



16. Monster Soup, 1828

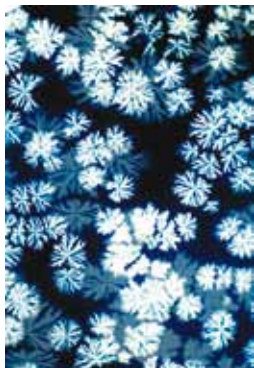
### Monster Soup - 1828

This image, 'Monster Soup' is a satirical comment on the condition of the water in the River Thames in the early 19th Century. At this time, outbreaks of typhoid and cholera were directly attributable to the river and by the middle of the century the pollution had killed all the fish.

The coloured engraving by William Heath (1795-1840) has both a top and a bottom title:

'Microcosm dedicated to the London Water Companies, brought forth all i monstrous, all prodigious things, hydras and gorgons and chimeras dire.'

'Monster Soup commonly called Thames Water being a correct representation of that precious stuff doled out to us!'



**17.** Sodium Bicarbonate (Artistic Photomicrograph)

### Glass Slide Collections

The RSC has acquired a number of different collections of lantern glass slides over its time; the bulk of the collection is composed of the Professor James Collection (presented to the Royal Society of Chemistry on 23rd October 1996) and the Claude Diamond Collection (presented by Bryan Diamond on 28th June 1999).

The slides from the Claude Diamond Collection illustrate Diamond's 1946 Cantor Lecture at the Royal Society of Arts that took place on Monday February 18th 1946. The lecture was titled: The manufacture of modern textile fibres. Claude Diamond (1897-1988) was Chief Technical Officer at Courtaulds in Coventry for 20 years and had 18 patents to his name.

Many of the slide images have been digitised and are available to view via the library catalogue. The complete glass slide collection, including the slides that have not yet been digitised, are searchable via the catalogue and available to view in the library.

### Dr Harold Rose Crystal Image Collection

Dr Harold Rose is an industrial chemist and award-winning photographer. The RSC has approximately 700 of the 35mm slides on crystals that he grew himself then beautifully photographed. Dr Rose mounted many exhibitions of his slides before donating them to the RSC. The slides are known as 'Artistic Photomicrographs' which are images that have been taken through a microscope under polarised light.



18. The President's Badge of Office

## Medals

### President's Badge of Office

The President's Badge of Office was constructed in 1949 and was originally designed to be the Badge of Office for the President of the Royal Institute of Chemistry. However, when the societies merged in 1980, this became the official Badge for the President of the Royal Society of Chemistry and is worn by the President on special occasions to this day.

The following is a truncated extract from an article written in the 'Journal and Proceedings of the Royal Institute of Chemistry' from 1949 describing the medal and the significance of its design and construction.

'The Badge itself consists of a wheel of gold with twelve spokes, each of which is composed of a different non-tarnishable white metal. The centre of the wheel is occupied by a hexagonal medallion bearing the figure of Priestley in enamel. The metals used for the spokes of the wheel are as follows, beginning from the upper vertical spoke and proceeding in a clockwise direction: palladium, cobalt, zirconium, iridium, niobium, tungsten, platinum, molybdenum, tantalum, rhodium, titanium and nickel.

Thus the four platinum metals occupy the north, south, east and west positions, and the intermediate positions are occupied symmetrically by (in order) the transitional metals, nickel and cobalt; group IV metals, titanium and zirconium; group V metals, tantalum and niobium; and group VI metals, molybdenum and tungsten. Tantalum and tungsten have been put on the opposite sides of the vertical axis so as to balance the weight, as these spokes are nearly twice as heavy as the corresponding molybdenum and niobium spokes. This arrangement is not only symmetrical, but takes account of the slightly differing colours of the metals, showing a gradual change from the pure white of palladium to the rather steely appearance of tantalum and niobium and back to the greyish white of platinum. For purposes of identification, the chemical symbols of these metals are engraved on the back of the gold ring at the point of contact with it.

The Badge is suspended from a collarette which has been woven specially in the form of a wide ribbon... The whole ribbon has been dyed with the earliest of the synthetic dyes, Mauveine, first prepared by W. H. Perkin in 1856.



19. The Faraday Medal

Every component of the Badge and the collarette thus has a special chemical significance. The central figure of Priestley, the discoverer of oxygen and the inventor of soda water, has long been incorporated in the Seal of the Institute and is the established symbol of the Institute's activities. The surrounding hexagon is, of course, symbolic of benzene and of the great industry that has been built up around aromatic organic chemistry. The gold wheel and the spokes of the various precious and untarnishable metals are representative of the outstanding part played by chemistry in the discovery and characterisation of the less common elements and of the development of their metallurgy and applications in industry. Another field of inorganic chemistry is represented by the enamels with which the central part of the Badge is adorned..<sup>14</sup>

In the article, the following commentary was supplied by one of the manufacturers that worked on the Badge explaining the complex and unique nature of producing it:

'We have had a great many intricate and interesting jobs during the past century, but none more so than the making of the jewel for the Royal Institute of Chemistry. To be called upon to produce a jewel from thirteen untarnishable metals, nine of which we had never worked and one or two only just discovered, was a shock, but difficulties are only made to be overcome, so we got down to it. We knew nothing of the tenacity, ductility or malleability of the majority of the metals. Neither did we know to what temperatures they could be submitted, nor what solders could be used. Several of the metals were more brittle than glass and we could neither turn, thread, nor solder them, and so had to devise special tools, and the interior of the badge, which, of course, cannot be seen, is something like a good clock movement. This is rather a coincidence, as we were only able to get it 'clocked in' about two hours before it was presented. We are glad to know it has given satisfaction.'<sup>14</sup>

### The Faraday Medal

The Faraday Medal was first proposed at the Faraday Society Finance Committee meeting on 13th May 1955 and was designed by the eminent goldsmith Mr Leslie Durbin in 1956. It is in 9ct gold and silvergilt, representing the head of Michael Faraday surrounded by a wreath of strawberry leaves and surmounted by a magnet and benzene ring. It is worn by the President of the Faraday Division on formal occasions and particularly at Faraday Discussions.

## Artefacts and Artwork

### Humphry Davy (Bust)

At the Annual General Meeting of the Chemical Society of March 29th, 1900, Professor Thomas Edward Thorpe (President of the Society, 1899-1901), reported on the gift to the Society of a bust of Humphry Davy:

'We are indebted to several of our Fellows for additions to the artistic possessions of the Society. Dr. Debus has presented us with a striking bust of Humphry Davy, a cast of one modelled during his lifetime by Miss Moore. In accordance with the donor's wishes, this bust now appears in our Meeting Room. On the recommendation of Mr. Thomas Armstrong, C.B., formerly the Art Director of the Science and Art Department, who was much impressed with the artistic quality of Miss Moore's work, this bust has been copied by Miss Levick, with certain adaptations taken from Sir Thomas Lawrence's well-known portrait in the possession of the Royal Society, and has been reproduced in bronze. The reproduction, together with its pedestal, has been given by our colleague, Dr. Messel.'<sup>15</sup>

### John Dalton (Bust)

The bronze bust of John Dalton was created by Miss Levick (also creator of the Davy bust) and gifted to the Chemical Society in 1903 by former President Sir Thomas Edward Thorpe (1845-1925). A copy of his accompanying letter was printed in the 'Proceedings of the Chemical Society' in 1903 and read out by President Professor William Tilden:

'The bronze is the work of Miss Levick, who is already favourably known to the Society by her reproduction of the bust of Davy in their possession. Of the artistic merits of her present work others must be the judge, but I may be permitted here to express my indebtedness to her for the skill and conscientious care with which she has striven to make a faithful and adequate presentment of the grand old philosopher.'<sup>16</sup>

John Dalton (1766-1844) was an English chemist best known for his development of atomic theory. The RSC has amongst its Historical Collection, papers and books by Dalton on this subject and also his 'New System of Chemical Philosophy'.



20. R.W. Bunsen, G. Kirchhoff & H.E. Roscoe (1862)

### William Perkin (Bust)

At the Annual General Meeting of the Chemical Society in 1907, President Professor Raphael Meldola reported on the gift to the Society of a marble bust of Sir William Perkin (1838-1907):

'On the occasion of the International Celebration marking the Fiftieth Anniversary of the Foundation of the Coal Tar Colour Industry, an address of congratulation to Sir William Henry Perkin, F.R.S., was presented on behalf of the Society by the President. In accordance with the resolution of the public meeting at which the commemoration was inaugurated, a marble bust of Sir William Perkin, executed by Mr. F. W. Pomeroy, A.K.A., has been presented to the Society by the Committee administering the Fund subscribed in support of the celebration.'<sup>17</sup>

### Henry Roscoe (Bust)

In 1914, President of the Chemical Society, Professor William Perkin Jnr, reported on the gift to the Society of a bust of Sir Henry Roscoe:

'It is with very great pleasure that the Council have to report that a bust of the Right Honourable Sir Henry Enfield Roscoe, by Mr. Alfred Drury, R.A., has been presented to the Society by the friends and former students of Sir Henry Roscoe. The presentation was made before a distinguished company in the Rooms of the Society on November 20th, and the bust now adorns the Library.'<sup>18</sup>

Sir Henry Enfield Roscoe (1833-1915) was the 17th President of the Chemical Society (1880-1882) and went to University College London in 1848 where Thomas Graham was the Professor of Chemistry. Roscoe was also a student of German chemist Robert Bunsen at Heidelberg; they later became collaborators in research and lifelong friends. Roscoe described Bunsen thus:

'As an investigator he was great, as a teacher he was greater, as a man and friend he was greatest.'<sup>19</sup>

The RSC has three volumes of papers, 'Bunsen and Roscoe Photochemical Researches', as part of the Roscoe Collection.



21. Thomas Graham



22. Hope: The Chemist, 2008

### Thomas Graham (Painting)

The portrait of Thomas Graham that hangs in Burlington House was specially commissioned by the Chemical Society in 1931. Incoming President Professor George Henderson acknowledged this at the Annual General Meeting that year:

'At the invitation of the President, Professor Thorpe, on behalf of some 20 subscribers, asked Dr. M. A. Whiteley to unveil a portrait in oils of Thomas Graham, the first President of the Society. The portrait had been painted by Mr. H. A. Budd, R.O.I., from a lithograph by W. Bosley made from a daguerreotype by Chudet. The President, in accepting the portrait for the Society, expressed the thanks of the Fellows to Professor Thorpe and all the subscribers for their generosity.'<sup>20</sup>

The artist, Herbert Ashwin Budd (1881-1950) was also well-known for designing posters for London Transport in the 1930's.

Thomas Graham (1805-1869) was the first President of the Chemical Society in 1841. Born in Glasgow, he became a student at the University of Glasgow in 1819. Graham's two main contributions to science were:

1. His studies on the diffusion of gases resulted in 'Graham's Law'.
2. His discovery of the medical method known as dialysis, his 'dialyzer' being the precursor to the modern dialysis machine. This study of colloids resulted in the branch of chemistry known as colloidal chemistry.

### Hope: The Chemist (Painting)

Hope: The Chemist by Stuart Luke Gatherer was bought from the Albemarle Gallery by the RSC in December 2008. The painting is part of a series illustrating the seven sins and seven virtues using modern-day professions. It is based on a much earlier classic, 'An Experiment on a bird in the Air Pump' (1768) by Joseph Wright. Wrights' painting was in turn inspired by Robert Boyle's experiments on the properties of air in the mid-17th Century.





23. Robert Boyle



24. Stained Glass Window by Lawrence Lee

### Schrodinger's Cat (Painting)

This is one of a series of nine small paintings by Christine Payne. Two of the paintings were shown at an exhibition at the Picture Gallery in The Science Museum, London from November 2001 to October 2002. The following is how she described her work:

'These small oil paintings which reference Schrodinger's hypothetical experiment consider the banality of representation and the representation of banality. They lie in the territory of the absurd, the paradoxical, the contradictory... and attempt to explore the space betwixt and between: the point of intervention: the moment of metamorphosis: the state of suspension within the nature of reality. For as in Schrodinger's experiment everything remains in limbo until an intelligent observer looks...'

'Schrodinger's Cat' is a thought experiment devised by Austrian physicist Erwin Schrodinger (1887-1961).

### Robert Boyle (Portrait)

This portrait of Robert Boyle (1627-1691) is attributed to Jonathan Richardson, Sr. (1667-1745), the exact date the portrait was painted is unknown but the artist was positively identified in a piece written for the 'The Institute of Chemistry of Great Britain and Ireland. Journal and Proceedings' in 1938:

'...this has been pronounced by several authorities as undoubtedly his work... The picture was purchased at a sale at Loudoun Castle, Galston, Ayrshire, and acquired for the Institute, by private subscription, in 1931.'<sup>21</sup>

As well as being regarded as the first modern chemist and the author of one of the first, major works in chemistry, 'The Sceptical Chymist', Robert Boyle is most well known for Boyle's Law which states that 'The pressure of an ideal gas at constant temperature varies inversely with the volume'. In 1660, Boyle formed the Royal Society with 11 others but declined the Presidency of the Society in 1680 as the oath conflicted with his religious principles.

### Stained Glass Windows

In 1967/1968, major refurbishment works were carried out in Burlington House. One aspect of this was the installation of specially designed stained glass windows to go either side of the main staircase landing.

The windows were designed by Lawrence Lee, eminent in his field, he created stunning stained glass windows in scores of churches throughout the UK, his most famous work being for Coventry Cathedral. Lawrence Lee celebrated his 100th birthday on 19th September 2009.

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