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# The Chemical Club: An Early Nineteenth-Century Scientific Dining Club

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The Chemical Club (*fl.* 1806–1828) was a small scientific dining club in London. Among its members were Sir Humphry Davy, William Hyde Wollaston, and Alexander Marcet. Other accomplished men of science, including John Dalton, Jöns Jacob Berzelius, and Augustin Pyramus de Candolle, also attended its meetings as guests. This article, drawing on the unpublished papers of Lionel Felix Gilbert, as well as a range of contemporary sources in print and manuscript, presents the first substantial history of the Chemical Club, and situates it in the context of the scientific and social networks of the period. It aims to enrich our understanding of the scientific culture of the early nineteenth century in Britain by tracing the Club's influence on, or connection to, some of the most pioneering and transformative scientific work of the first quarter of the 1800s, such as the discovery of nitrogen trichloride, the invention of the miners' safety lamp, and Hans Christian Ørsted's work on electromagnetism.

## The Chemical Club: an early nineteenth-century scientific dining club

The Chemical Club (*fl.* 1806–1828) was a small scientific dining club in London. Among its members were Sir Humphry Davy (1778–1829), William Hyde Wollaston (1766–1828), and Alexander Marcet (1770–1822), and similarly accomplished men of science, including John Dalton (1766–1844), Jöns Jacob Berzelius (1779–

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1848), and Augustin Pyramus de Candolle (1778–1841), came occasionally as guests to its meetings. The aim of this article is to present the fullest history of the Chemical Club to date. It will cover details of its membership, the earliest and latest traceable dates of its activities, and, as far as is possible, the topics of discussion, both scientific and otherwise, at its meetings.

That most of the Chemical Club's members and guests were influential figures in early nineteenth-century scientific circles in Britain and beyond speaks of the continuing importance of the present subject to historians of science, especially chemistry. Although designed to be informal, associations such as the Chemical Club were nevertheless important channels of diffusion for scientific knowledge among their members and guests. A wider aim of this article is therefore to enrich our understanding of the scientific culture of the early nineteenth century in Britain by tracing the Chemical Club's influence on, or connection to, some of the most pioneering and transformative scientific work of the first quarter of the century, such as the discovery of nitrogen trichloride, the invention of the miners' safety lamp, and Hans Christian Ørsted's (1777–1851) work on electromagnetism. A crucial source in the preparation of this account has been the several pages of draft research notes, of mixed holograph and typescript, among the papers of Lionel Felix Gilbert (1893–1955),<sup>1</sup> Senior Lecturer in the Department of Chemistry of University College London (UCL).<sup>2</sup> Gilbert's interest in the Chemical Club was almost certainly stimulated by the fact that Wollaston was a member, for Gilbert was long at work on a draft biography of Wollaston that was never published.<sup>3</sup>

There were a number of scientific dining clubs in early nineteenth-century London, many modelled on the older clubs attached to the Royal Society, the earliest of which can be traced back to the seventeenth century.<sup>4</sup> Club gatherings took place on a regular basis, usually on the same day of the week, and followed a general formula, namely a dinner with scientific discourse, often supplemented by discussion of other topics of the day (such as social, institutional, and political matters). Members paid a subscription to cover basic costs such as that of the dinner, and were occasionally permitted to bring guests, or "strangers," to meetings – often visiting "men of science" spending time in the capital. The aim of these gatherings was

<sup>1</sup> Among historians of science, Gilbert's best-known publication is "The Election to the Presidency of the Royal Society in 1820," *Notes and Records of the Royal Society of London* 11 (1955): 256–79. As well as being an organic chemist, Gilbert was Secretary of the Society for the History of Alchemy and Early Chemistry in 1937–1938. I acknowledge a substantial debt in the preparation of this article to Gilbert's earlier work on the Chemical Club.

<sup>2</sup> The research notes referred to are held in UCL Special Collections, Lionel Felix Gilbert Papers, Box 8, File 1; future references to "Gilbert Papers," unless otherwise indicated, refer to the unfoliated papers in this particular file. Gilbert's papers date from ca. 1930 to 1955 and comprise twenty-two boxes, one roll, and one large folder. For more information, see "Gilbert Papers" (UCL, 2017), <https://www.ucl.ac.uk/library/special-collections/a-z/gilbert> (accessed 25 September 2017).

<sup>3</sup> Melvyn C. Usselman, *Pure Intelligence: The Life of William Hyde Wollaston* (Chicago: University of Chicago Press, 2015) is now the standard biography of Wollaston. Usselman carried out research in Gilbert's papers in the preparation of his volume, and the hand-list of the Gilbert materials held at UCL that he compiled in 1976 has been of use in the preparation of the present article.

<sup>4</sup> On the history of these clubs, see T. E. Allibone, *The Royal Society and Its Dining Clubs* (Oxford: Pergamon Press, 1976).

not merely scientific enrichment, but social enrichment as well; the convivial environment of a tavern was usually favoured over the more formal surroundings of the lecture room or the laboratory, and the evening meal was often supplemented with wine (which, as we will see below, was occasionally taken in excess). Record-keeping varied between clubs. From an early stage, the well-known Thursday's Club of the Royal Philosophers, for example, kept detailed lists of rules, registers of attendance, minutes, accounts, and even dinner menus.<sup>5</sup> In contrast, the Chemical Club, being one of the numerous "small, private, less-formal type of societies, often preferring conversation to the more formal presentation of papers,"<sup>6</sup> kept no records that have yet come to light. There are, however, a number of sources in print, typescript, and manuscript that allow for the following reconstruction of the history of the Chemical Club, albeit with inevitable gaps.

### Club culture, fragmentation, and specialisation

On general club culture in the metropolis, Hannah Gay and John W. Gay have observed:

It has been said that over two thousand clubs existed in London at the start of the eighteenth century. By the nineteenth century the number had grown considerably and the voluntary association of men, in a great variety of organizations, was an important feature of metropolitan life. London culture was a club culture.<sup>7</sup>

In the late eighteenth and early nineteenth centuries, a period of increasing scientific specialisation, many men of science were turning towards their own clubs and newer, smaller societies for scientific and social enrichment, and away from the Royal Society of London, which had enjoyed hegemony over scientific life in the capital since its formation. N. G. Coley notes that "[i]n days when numerous coffee and dinner clubs were springing up, it was an easy matter to persuade a circle of friends and colleagues to join in following the fashionable trend. Thus a common interest might be furthered in a congenial atmosphere."<sup>8</sup>

Of these clubs and societies, several were specifically devoted to the study of chemistry. There is mention of a "Chemical Society" visited by John Playfair (1748–1819)

<sup>5</sup> Allibone, *Dining Clubs*, 20–22. The records kept by the Coffee House Philosophical Society are similarly detailed; see T. H. Levere and G. LE. Turner, *Discussing Chemistry and Steam: The Minutes of a Coffee House Philosophical Society 1780–1787* (Oxford: Oxford University Press, 2002).

<sup>6</sup> Gwen Averley, "The 'Social Chemists': English Chemical Societies in the Eighteenth and Early Nineteenth Century," *Ambix* 33 (1986): 99–128, on 99.

<sup>7</sup> Hannah Gay and John W. Gay, "Brothers in Science: Science and Fraternal Culture in Nineteenth-Century Britain," *History of Science* 35 (1997): 425–53, on 425. William C. Lubenow, "Only Connect": *Learned Societies in Nineteenth-Century Britain* (Woodbridge: Boydell Press, 2015) also contains useful material on nineteenth-century club culture generally. For a brief account of pre-nineteenth-century club culture, see John Timbs, *Club Life of London: With Anecdotes of the Clubs, Coffee-Houses and Taverns of the Metropolis During the 17th, 18th, and 19th Centuries*, 2 vols. (London: Richard Bentley, 1866), vol. 1, 1–8.

<sup>8</sup> N. G. Coley, "The Animal Chemistry Club: Assistant Society to the Royal Society," *Notes and Records of the Royal Society of London* 22 (1967): 173–85, on 173.

in 1781 that met fortnightly at the Chapter Coffee-House;<sup>9</sup> a “Chemical Society” attached to Guy’s Hospital of which William Allen (1770–1843) was elected a Fellow in 1794;<sup>10</sup> and, from 1806, a “London Chemical Society,” which reportedly had sixty initial members and operated out of Old Compton Street, Soho.<sup>11</sup> To this list may be added the subject of the present article, the Chemical Club: a self-selecting group of chemists, some eminent and some less so, their meetings occasionally supplemented by visiting men of science, who gathered for dining, drinking, and discussion with some regularity over a period of a little more than twenty years.

As Coley makes clear in his work on the Animal Chemistry Club (another small association formed in the first decade of the nineteenth century, and dissolved by the end of the second), the growth of the number of specialist clubs and societies that sought independence from the “monolithic structure”<sup>12</sup> of the Royal Society under its dominating President, Sir Joseph Banks, came about as a matter of felt necessity. Coley notes that Banks had initially supported the Linnean Society (formed in 1788); however, by 1790 the Linnean had begun to rival the Royal Society in the field of natural history. As a consequence, the support that Banks lent the Horticultural Society (formed in 1804) and the Geological Society (formed in 1807) was more qualified, Banks realising that encouragement of such splinter societies could diminish the intellectual capital of the parent society.

The Geological Society’s rejection of Banks’s proposal that, in Coley’s words, “[o]nly Fellows of the [Royal Society] should be accepted as full members of the new Geological Society and all their work should be submitted to the Royal Society for possible publication in the *Philosophical Transactions*”<sup>13</sup> – in short, that the Geological Society would become an “Assistant Association” of the Royal Society – demonstrates that the members of these new specialist societies thought that there was a better way of going about things, and that they were not afraid to try it. No longer would they have to sit alongside, as Coley puts it, “Fellows [who] were in the habit of sitting half-asleep during the reading of papers on subjects which were not of immediate interest to them,” nor would they be denied the opportunity for “critical appraisal” of the papers presented or

<sup>9</sup> Charles Richard Weld, *A History of the Royal Society, With Memoirs of the Presidents*, 2 vols. (London: John W. Parker, 1848), vol. 2, 149: “Judging by the number of communications on subjects connected with chemistry, made to the Society in 1780, 1781, and 1782, this science appears to have been much cultivated at that period by the Fellows, and a Chemical Society, composed of the leading chemists, was formed. The late Professor Playfair says, in his *Journal*, under the date of 1781, ‘Chemistry is the rage in London at present. I was introduced by Mr. B. Vaughan to a Chemical Society, which meets once a fortnight in the Chapter Coffee-House.’” Jan Golinski notes Playfair’s visit in Levere and Turner, *Discussing Chemistry and Steam*, 191. This “Chemical Society” seems to have been one of several alternative names attached to the Coffee House Philosophical Society. Chemistry was an especially prominent topic of discussion at their meetings.

<sup>10</sup> Ernest C. Cripps, *Plough Court: The Story of a Notable Pharmacy, 1715–1927* (London: Allen and Hanburys, 1927), 26: “In April, 1794, he [i.e. Allen] was elected a fellow of the Chemical Society.”

<sup>11</sup> Ian Inkster, “Science and Society in the Metropolis: A Preliminary Examination of the Social and Institutional Context of the Askesian Society of London, 1796–1807,” *Annals of Science* 34 (1977): 1–32, on 5.

<sup>12</sup> Coley, “Animal Chemistry Club,” 173.

<sup>13</sup> Coley, “Animal Chemistry Club,” 173–74.

the subjects discussed, as was the case at meetings of the Royal Society. In the last decades of the eighteenth century and the first decade of the nineteenth, the fragmentation, on the one hand, of “monolithic” societies, and the proliferation, on the other, of more specialised clubs and societies, were, as social and institutional trends, interrelated: the former’s loss was the latter’s gain. It is from this radical period in the history of scientific society and club culture – radical in the sense that these decades saw a rejection of tradition, and the rise of a different, newer way of doing things – that the Chemical Club emerged.

Little has been published on the Chemical Club. Specific references to the Club, and in some cases brief descriptions, appear in Robert Bud’s and Gerrylynn K. Roberts’s 1984 book, as well as in articles by Coley, Averley, Frank A. J. L. James, and G. Jeffery Leigh and Alan J. Rocke.<sup>14</sup> Usselman’s recent biography of Wollaston also makes several passing references to the Chemical Club.<sup>15</sup> Inkster’s work on science and society in the metropolis, which sheds much light on the richness of the scientific club scene in London at the turn of the century, has been helpful; I will return to his article in my conclusions.<sup>16</sup> Also valuable, in addition to all of the sources listed above, is Frederick Kurzer’s history of the London Institution, which co-existed with the Chemical Club for approximately twenty years (*ca.* 1807–1828).<sup>17</sup> Kurzer reminds us of just how fundamentally different, in matters such as structure, aim, and function, contemporary entities operating within the same sphere of interest can be.

## Membership, guests, and the early years, 1806–1808

Traceable as members of the Chemical Club, alongside Davy, Wollaston, and Marcet, are William Babington (1756–1833), William Blake (1774–1852), John Bostock (1772–1846), William Thomas Brande (1788–1866), John George Children (1777–1852), Charles Hatchett (1765–1847), Edward Charles Howard (1774–1816), William Macmichael (1783–1839), Sir John Sebright (1767–1846), and Henry Warburton (1784–1858). Richard Bright (1789–1858) was probably a member, as may have been Peter Mark Roget (1779–1869). Counting Roget gives a total membership of fifteen, which tallies with a comment recorded by Berzelius, who attended a meeting of the Chemical Club as a guest of Wollaston’s in July 1812, in his travel notes:

<sup>14</sup> Robert Bud and Gerrylynn K. Roberts, *Science Versus Practice: Chemistry in Victorian Britain* (Manchester: Manchester University Press, 1984), 22, 193; Coley, “Animal Chemistry Club”; Averley, “Social Chemists”; Frank A. J. L. James, “How Big is a Hole?: The Problems of the Practical Application of Science in the Invention of the Miners’ Safety Lamp by Humphry Davy and George Stephenson in Late Regency England,” *Transactions of the Newcomen Society* 75 (2005): 175–227; G. Jeffery Leigh and Alan J. Rocke, “Women and Chemistry in Regency England: New Light on the Marcet Circle,” *Ambix* 63 (2016): 28–45.

<sup>15</sup> Usselman, *Pure Intelligence*, *passim*.

<sup>16</sup> Inkster, “Science and Society in the Metropolis.”

<sup>17</sup> Frederick Kurzer, “Chemistry and Chemists at the London Institution 1807–1912,” *Annals of Science* 58 (2001): 163–201.

Experiments continued at Marcet's house. I dined at the Chemical Club, introduced by Dr Wollaston. Those present were Marcet, Warburton, Wollaston, Hatchett and Howard. This club eats together every Tuesday,<sup>18</sup> and if any of the members, who are all chemists and are 15 in number, were to invite strangers on that day, then he is required to pay for the others' dinner at the Club. In winter, when they are working, they announce small experiments after the meal and report on experiments and the like.<sup>19</sup>

Traceable as guests at various times, alongside Berzelius, Dalton, and Candolle, are François Arago (1786–1853), William Buckland (1784–1856), Thomas Charles Hope (1766–1844), and Lord Webb John Seymour (1777–1819). Joseph Louis Gay-Lussac (1778–1850) was probably also a guest, as we will see below.

Meetings of the Chemical Club generally took place on Tuesday evenings, usually on the last Tuesday of the month. No indication is given as to where the meetings were held, other than that, as is confirmed on one occasion, they were held in a tavern, almost certainly in a central location north of the Thames. The Crown and Anchor, in Arundel Street, off the Strand, was chosen for the Royal Society Club's Thursday evening meetings during the years 1780–1847;<sup>20</sup> in light of the new, radical currents that were flowing through scientific society and club culture in the early nineteenth century, it seems likely that a different venue would have been chosen for meetings of the Chemical Club, to further distinguish it from other, older clubs. No indication is given, either, that a single venue was favoured consistently over the documented twenty-two-year life of the Club.

The earliest traceable mention of what is surely the Chemical Club appears in a letter of 29 May 1806 from James Hall (1761–1832) to Alexander Marcet: "I was sorry on coming home yesterday to find that it was impossible for me to dine with the chemical club."<sup>21</sup> As there is no record of Hall being a member, he must have intended to visit as a guest, presumably invited by Marcet. This letter from Hall predates that which has previously been believed to be the earliest source in which the Chemical Club is mentioned, a letter from Davy to William Hasledine Pepys (1775–1856) of 13 November 1807:

We are forming a little talking Geological Dinner Club, of which I hope you will be a member. I shall propose you to-day. Some things have happened in the Chemical Club, which I think render it a less desirable meeting than usual, and I do not think you would find any gratification in being a member of it. Hatchett never comes, and we sometimes meet only two or three.<sup>22</sup>

<sup>18</sup> Here Berzelius is mistaken: the Chemical Club met on a monthly, not weekly, basis.

<sup>19</sup> *Jac. Berzelius Reseanteckningar*, ed. H. G. Söderbaum (Stockholm: P. A. Norstedt, 1903), 38, entry for Tuesday 28 July [1812]. I am grateful to Simone Schroth for assisting with my translations from Swedish, here and hereafter.

<sup>20</sup> Timbs, *Club Life of London*, vol. 2, 179.

<sup>21</sup> James Hall to Alexander Marcet, 29 May 1806, University of Virginia, Albert and Shirley Small Special Collections Library, Papers Pertaining to Charles Darwin and Evolution, MSS 3314.

<sup>22</sup> Humphry Davy to William Hasledine Pepys, 13 November 1807, Davy Letters Project website, <http://www.davy-letters.org.uk> (accessed 25 September 2017). This resource, hereafter DLP, will be superseded by, and thus become unavailable upon, the publication of *The Collected Letters of Sir Humphry Davy*, ed. Tim Fulford and Sharon Ruston, advisory ed. Jan Golinski, Frank A. J. L. James, and David Knight, 4 vols. (Oxford: Oxford

The “little talking Geological Dinner Club” would shortly become the Geological Society. Coley’s tentative identification of the Chemical Club of Marcet and Davy with “the much older Chemical Club which was also attached to the Royal Society” (in existence from about 1782, Coley adds) is not supported with evidence.<sup>23</sup> Averley offers an additional suggestion: the 4 June 1804 entry in the Royal Institution Minutes of Managers’ Meetings refers to “the ‘Chemical Society of London’ [and] it seems likely that this is the same group as the Chemical Club.”<sup>24</sup> This is a possibility, but it remains speculation.

Membership of the Chemical Club was apparently exclusive. Referring to Davy’s letter to Pepys, cited above, Gilbert notes that Davy “refrains from saying that, to his great disappointment, his proposal for Pepys’s election had met opposition from certain members. However, he softens the blow by saying beforehand that he will propose Pepys for membership of a new Geological Dinner Club that was being formed.”<sup>25</sup> Gilbert’s source, though, is not known. There is later record too, in Berzelius’s travel notes, of William Prout (1785–1850) being passed over, although it is not known whether he was ever proposed for membership:

Prout reported that during my previous stay in London he had recently gained a degree in medicine and had not yet had enough time to make himself known; that he still was [only] little personally acquainted with London’s chemists, with none of whom he associates except Marcet; that the chemists here were divided into factions and that anyone who does not join any party is for them [as a person] just as much a stranger as though he lived in Russia or Sweden. He had still not been proposed as a member of the Royal Society, never once invited to participate in the Chemical Club (a type of association of chemists where you eat together on the last Thursday<sup>26</sup> of every month).<sup>27</sup>

It would seem that Pepys, and possibly Prout, failed to gain admittance to the Chemical Club more on social than on scientific grounds: both were, after all, well-regarded chemists, and others of lesser scientific stature, such as the politician and agriculturist Sebright (the only member of the Club who was not a Fellow of the Royal Society), were granted membership.<sup>28</sup>

From 1806 to 1808 nothing is known about the activities of the Chemical Club, other than what can be gleaned from Davy’s comment in his above-cited letter to Pepys. It would seem that these early years were ones of foundation-laying: before

<sup>22</sup> *Continued*

University Press), forthcoming 2018. For an earlier text of this letter, see John Ayrton Paris, *The Life of Sir Humphry Davy*, 2 vols. (London: Henry Colburn and Richard Bentley, 1831), vol. 1, 279.

<sup>23</sup> Coley, “Animal Chemistry Club,” 177.

<sup>24</sup> Averley, “Social Chemists,” 124.

<sup>25</sup> Gilbert Papers.

<sup>26</sup> Here Berzelius is again mistaken: this must be a slip for “Tuesday.” There are no records of any Thursday meetings of the Chemical Club. Berzelius is perhaps confusing the Chemical Club with the Royal Society Club, which did meet on Thursday evenings.

<sup>27</sup> *Jac. Berzelius Reseanteckningar*, 114, entry for [Thursday] 6 August [1818]. That this entry was written on a Thursday might also account for the slip identified in the previous footnote.

<sup>28</sup> Bud and Roberts, *Science Versus Practice*, 22. All traceable guests and members of the Chemical Club were male. As such, the Club may be placed into Gay’s and Gay’s category of the “less formal fraternal organization” (i.e. less formal than the learned societies); “Brothers in Science,” 425.



1808, a core of frequently attending members had yet to be established (“Hatchett never comes, and we sometimes meet only two or three”), and the Club, still finding its feet in a world of new clubs and societies, had yet to host any scientific guests of note. But from 1809 the record becomes more substantial, and more important.

### The middle years, 1809–1816

These years of the history of the Chemical Club are those of a club at its peak. According to the indications we have of the scientific content of Chemical Club meetings, it was during this period that the most important discussions took place. It was also during these years that the Club hosted its most prominent guests. In 1809, John Dalton attended a meeting of the Chemical Club as a “stranger”; he was in London between December 1809 and February 1810, delivering a course of twenty lectures at the Royal Institution. In a letter to the Reverend William Johns (1771–1845), with whom Dalton lodged in Manchester between 1804 and 1830, begun on 27 December 1809 and written over two or three days, Dalton reported:

On Tuesday [26 December 1809] I had my third lecture, after which I went to dine at a tavern to meet the chemical club. There were five of us, two of whom were Wollaston and Davy, secretaries of the Royal Society; we had much discussion on chemicals. Wollaston is one of the cleverest men I have yet seen here.<sup>29</sup>

Of the “much discussion on chemicals” on this last Tuesday of the month, one can only speculate. There is one especially likely topic of conversation, though: Davy had, in his letter to Dalton of 15 November 1809, expressed an interest in hearing Dalton’s “new views of the atomic system,”<sup>30</sup> presumably those that Dalton was about to publish in Part II of the first volume of his *New System of Chemical Philosophy* in 1810.

The next recorded guest of the Chemical Club is Lord Webb John Seymour. Seymour, who lived for most of his life in Edinburgh, was visiting London during August 1811. A published transcription of his diary entry for Tuesday 27 August 1811, the last Tuesday of the month, records: “Dined at the Chemical Club in company with Davy, D<sup>r</sup> Hope, D<sup>r</sup> Wollaston, D<sup>r</sup> Monsel etc.”<sup>31</sup> “D<sup>r</sup> Hope” is surely Thomas Charles Hope, Professor of Chemistry at the University of Edinburgh (1799–1843), and therefore certainly a guest at the London-based Chemical Club. Hope had long been an associate of Davy’s: in Edinburgh, in

<sup>29</sup> On 15 November 1809, Davy, Professor of Chemistry at the Royal Institution, had written to Dalton: “I send the motions of the Managers respecting your lectures ... If you could begin about the 22 or 23<sup>d</sup> of Dec<sup>r</sup> it would suit the arrangement of the Institution,” DLP. In Dalton’s letter to Johns, he records that “[o]n Thursday, at two, I gave my first lecture”; 21 December 1809 was a Thursday, making the following Tuesday 26 December, when Dalton gave his third lecture. Dalton’s letter is reproduced in R. Angus Smith, *Memoir of John Dalton* (London: H. Bailliere, 1856), 60–62.

<sup>30</sup> Davy to Dalton, 15 November 1809, DLP.

<sup>31</sup> Lady Guendolen Ramsden, *Correspondence of Two Brothers: Edward Adolphus, Eleventh Duke of Somerset, and His Brother, Lord Webb Seymour, 1800 to 1819 and After* (London: Longmans, Green, 1906), 96.

1800, he had replicated some of the experiments on nitrous oxide made by Davy at Thomas Beddoes's (1760–1808) Medical Pneumatic Institution in 1798–1800,<sup>32</sup> and, as an associate of Sir Benjamin Thompson, Count Rumford (1753–1814), he had played a key role in securing Davy his appointment at the Royal Institution in 1801.<sup>33</sup> Later in 1811, in October, Davy's brother John (1790–1868) would begin to study for the degree of MD at the University of Edinburgh, and was taught by Hope. "D<sup>r</sup> Monsel" is untraced; as Gilbert observes, this is surely an error in transcription for "D<sup>r</sup> [Alexander] Marcet."

In 1812, Berzelius visited England between June and September,<sup>34</sup> and dined at the Chemical Club on Tuesday 28 July, the last Tuesday of the month; his recollection has already been quoted above. Davy was absent from this meeting, as he was honeymooning in the Highlands of Scotland. By the time of the meeting of the Chemical Club on Tuesday 27 October, at which Children, Davy, and Marcet were present,<sup>35</sup> and again held on the last Tuesday of the month, Berzelius had left London. Marcet sent Berzelius a report of this meeting, at which the recently discovered, but not yet thoroughly investigated, nitrogen trichloride (NCl<sub>3</sub>) was discussed. Nitrogen trichloride is a potent detonating compound, which exists in the form of an oily yellow liquid:

You had no sooner left England than Davy arrived from Scotland asking of you eagerly. I have had the pleasure of dining with him twice, and we have repeatedly spoken of you. Since his return he has already revealed a curious fact that is sure to interest you. We were having dinner together last Tuesday at the Chemical Club. Mr. Children, in connection with a remark that was made on *our oil*,<sup>36</sup> said that he had received, a few months ago, a letter from a young chemistry student named Burton [James Burton, later Haliburton (1788–1862)], who asked him innocently why when oxymuriatic gas is placed in contact with a solution of ammonia, drops of oil form on the surface of this solution, a question which Children could only answer by conjecture, and he had not even thought to positively ascertain the fact. Davy heard this story and related in turn that he had, a few months ago, received a letter from Professor Ampère [André-Marie

<sup>32</sup> Detailed in Davy, *Researches, Chemical and Philosophical; Chiefly Concerning Nitrous Oxide, or Dephlogisticated Nitrous Air, and Its Respiration* (London: J. Johnson, 1800).

<sup>33</sup> As attested to by Thomas Stewart Traill: "In passing through Bristol, Hope visited the Pneumatic Institution of Dr Beddoes, and was much struck with the originality and inventive genius of young Davy. Soon afterwards, a lecturer of talent was wanted to fill the Chemical Chair in the Royal Institution established in London, under the management of Count Rumford. Dr Hope was consulted; he strongly recommended Davy to the notice of the Count; and in 1801, the young chemist was established in the Royal Institution. This anecdote, which I have extracted from the original correspondence, once in my hands, is honourable to the discernment of Hope, who thus early recognised that energetic genius, which was destined to win the proudest laurels in the career of physical discovery"; "Memoir of Dr Thomas Charles Hope, Late Professor of Chemistry in the University of Edinburgh," *Transactions of the Royal Society of Edinburgh* 16 (1849): 419–34, on 432. The "original correspondence" Traill refers to has not been traced. Davy, settling in in London shortly after his appointment, wrote Hope a letter of thanks; see Davy to Thomas Charles Hope, 28 June 1801, DLP. For an earlier, partial text of this letter, see *The Collected Works of Sir Humphry Davy*, ed. John Davy, 9 vols. (London: Smith, Elder, 1839–1840), vol. 1 (1839), 83.

<sup>34</sup> *Jac. Berzelius Reseanteckningar*, 3, 81, entries for Monday 29 June [1812] and Wednesday 16 September [1812].

<sup>35</sup> Marcet to Berzelius, 31 October 1812, in *Jac. Berzelius Bref*, ed. H. G. Söderbaum, 14 vols. in 10 (Uppsala: Almqvist and Wiksell, 1912–1932), vol. 3 (1913), 8.

<sup>36</sup> This was carbon disulphide (CS<sub>2</sub>), which had been the subject of Berzelius's and Marcet's research during Berzelius's stay in London.

Ampère (1775–1836) in Paris, who had informed him that a fellow had (by a process not explained) successfully made a combination of oxymuriatic acid and nitrogen, which had a most remarkable detonating power. Davy immediately linked the two stories, and the next day repeated Burton’s experiment, obtained the oil in question, took a small globule on a platinum blade and bringing it near a candle the globule detonated with flame almost like a grain of gunpowder. This morning I have myself repeated the experiment with complete success. I observed that the globules of oil (which began to appear after a quarter of an hour) sometimes floated and sometimes fell to the bottom of the solution, they are easily evaporated in the air, and that, left to themselves in the apparatus where they were produced, they appeared in a few hours to return to the gaseous state. As the globules are formed there is absorption of gas, and in being mixed with water they appear to disengage globules of gas. The oil is yellow like Lampsadius’s oil before being distilled. Is it not a curious substance, still more curious than our *particular substance*? I bet that my friend Berzelius will not rest before getting to know this oil. The whole experiment will take him an hour or two.<sup>37</sup>

As Gilbert comments wryly in his notes, it is lucky that the Club membership did not soon suffer severe losses: although Marcet, as his letter to Berzelius confirms, made nitrogen trichloride apparently without incident, both the original discoverer of it, Pierre Louis Dulong (1785–1838), and Davy were not so lucky. In 1811, Dulong reportedly lost an eye and a finger in a nitrogen trichloride explosion.<sup>38</sup> Davy had a similar experience in 1812, despite being warned in advance of Dulong’s injuries by Ampère:

I attempted to collect the products of the explosion of the new substance, by applying the heat of a spirit lamp to a globule of it, confined in a curved glass tube over water: a little gas was at first extricated, but long before the water had attained the temperature of ebullition, a violent flash of light was perceived, with a sharp report; the tube and glass were broken into small fragments, and I received a severe wound in the transparent cornea of the eye, which has produced a considerable inflammation ... and obliges me to make this communication by an amanuensis. This experiment proves what *extreme* caution is necessary in operating on this substance, for the quantity I used was scarcely as large as a grain of mustard seed.<sup>39</sup>

<sup>37</sup> Marcet to Berzelius, 31 October 1812, *Berzelius Bref*, vol. 3, 8–9. I am grateful to Tim Fulford and Claire Khelfaoui for assisting with my translations from French, here and hereafter.

<sup>38</sup> Davy, “On a New Detonating Compound,” *Philosophical Transactions of the Royal Society of London* 103 (1813): 1–7, on 2.

<sup>39</sup> Davy, “On a New Detonating Compound,” 5. Davy was not put off by the experience of damaging his eyesight; no less than four further explosions, and further injury, followed in the laboratory of the Royal Institution, as Michael Faraday, Davy’s assistant, records in a letter to Benjamin Abbott of 8 April 1813. This is Faraday’s description of what was presumably the last of these explosions: “the experiment ... was repeated this morning with a larger portion of the substance – when put in the pump it was exhausted and there stood for a moment or two and then exploded with a fearful noise both Sr. H. & me had masks on but I escaped this time the best Sr. H. had his face cut in two places about the chin and a violent blow on the forehead struck through a considerable thickness of silk & leather & with this experiment he has for the present concluded”; *The Correspondence of Michael Faraday*, ed. Frank A. J. L. James, 6 vols. (London: Institution of Electrical Engineers, 1991–2012), vol. 1 (1991), 51.

It is for this reason that Davy wrote in the *Philosophical Transactions* that he was “anxious that [his findings] should be made public as speedily as possible.”<sup>40</sup>

There is only one brief mention of the Chemical Club in 1813, in a letter from Marcet to Berzelius of 28 August, which refers back to the latter’s visit in the previous year: “all our friends at the Chemical Club are always quick to ask for your news.”<sup>41</sup> Mentions of the Chemical Club in the year 1814 are also brief. In a letter of 26 January 1814, Sebright wrote: “I intend to dine at the Chemical Society on Tuesday.”<sup>42</sup> In referring to the “Chemical Society” (my emphasis) rather than the Chemical Club, Sebright might possibly be stating his intention to dine at one of the other Chemical Societies identified above, such as the London Chemical Society formed in 1806 and based in Soho; on the balance of evidence, though, this seems unlikely.<sup>43</sup> The informality of the association was such that it was occasionally referred to by the name “Society,” despite “Club” being the most frequently used epithet. Long after his visit to London, Berzelius was still a regular topic of conversation at the Chemical Club; Marcet wrote to Berzelius on 4 April 1814: “All your friends here are doing well, and I assure you that we speak of you often and with great interest, especially at the Chemical Club.”<sup>44</sup>

From the year 1815 there are two mentions of the Club: one in a private letter, and one in a regional newspaper. On 29 March 1815 (the last Wednesday of the month), Marcet wrote to Berzelius: “Many thanks, my dear friend, for your specimens. They are very interesting, as are Wollaston’s, and were examined in detail yesterday at the Chemical Club ... What beautiful pieces of pyrophyllite and emerald!”<sup>45</sup> Over the autumn and winter of this year, the Club also played a role in the development of Davy’s miners’ safety lamp. On 26 October 1816, in the face of gathering public debate over the originality of Davy’s work on the lamp, the Reverend John Hodgson (1779–1845), one of Davy’s strongest allies in the north-east of England, published a chronology of the development of Davy’s lamp in the *Newcastle Courant*. According to Hodgson,

In a letter, dated 19th October, 1815, [Davy] says, ‘I have already discovered that explosive mixtures of mine-damp [mainly methane, CH<sub>4</sub>] will not pass through small apertures or tubes, and that if a lamp or lanthorn be made air-tight on the sides, and

<sup>40</sup> Davy, “On a New Detonating Compound,” 1.

<sup>41</sup> Marcet to Berzelius, 28 August 1813, *Berzelius Bref*, vol. 3, 68.

<sup>42</sup> Letter from Sir John Sebright to an unknown correspondent, 26 January 1814, transcription in Gilbert Papers. The original letter has not been traced. Here and hereafter, I have attempted to trace the originals of the documents from which Gilbert prepared transcriptions. Gilbert did not cite locations of the original manuscripts in his notes. The Bibliothèque de Genève has not been able to find any of the currently untraced letters to Marcet, of which there are seven, in the Marcet Family Papers held there.

<sup>43</sup> Sebright’s connections to principal members of the Chemical Club were not solely scientific. Just as Davy had hosted Sebright in the laboratory of the Royal Institution (to which Sebright was a Subscriber), so too had Sebright hosted Davy at Beechwood Park, the former’s estate, during the first days of the latter’s honeymoon in 1812. Beechwood was also visited by others with Chemical Club connections, such as Wollaston. All of this suggests that Sebright’s “Chemical Society” and the Chemical Club were the same, as does the fact that the proposed dinner was to be held on a Tuesday.

<sup>44</sup> Marcet to Berzelius, 4 April 1814, *Berzelius Bref*, vol. 3, 92.

<sup>45</sup> Marcet to Berzelius, 29 March 1815, *Berzelius Bref*, vol. 3, 120.

furnished with apertures to admit the air, it will not communicate flame to the outward atmosphere.’ On the 25th of October he announced his discoveries to the Chemical Club of London.<sup>46</sup>

25 October 1815 was a Wednesday. So either the Chemical Club did not meet on their usual Tuesday (although the last Tuesday of the month in October 1815 was the thirty-first), or the meeting was actually held on the previous day, Tuesday 24 October. When Davy wrote to Hodgson, on 19 October 1815, that he did not wish notice of his findings “to be communicated to the public till I have mentioned [them] to some of my scientific friends in town,”<sup>47</sup> it seems likely that he was referring to the next meeting of the Chemical Club.

The Club hosted another eminent guest at a meeting in the first quarter of 1816: the botanist Augustin Pyramus de Candolle, who was visiting England during this time,<sup>48</sup> and who attended as a guest of Marcet’s. In his *Mémoires et souvenirs*, Candolle identifies Wollaston as a member of the Club, and implies that Blake is also:

He [i.e. Marcet] took me also to the Chemical Club, where I saw the majority of chemists. Mr Blake, doctor and chemist,<sup>49</sup> an excellent man who was very polite towards me, invited me one day to his home and had me taste a lot of preparations made with various fruits which he believed imitated wine. At each new test, I always said ‘This isn’t wine.’ Finally, after having practically ruined my palate with these spirits, he presented me with one and I told him, to his great joy, ‘This is wine, but I’m not familiar with it at all.’ It was wine made with brandy and vine leaves ... Mr Wollaston, the most prominent member of the Chemical Club, is one of the men who interested me most in England. He was a profound scholar and gifted with rare wisdom. His friends said that he was never wrong, and called him, laughingly, the Pope, on account of his infallibility. He had grace, finesse, was softly spoken, and was noted for a great variety of knowledge.<sup>50</sup>

During his visit to England, Candolle visited Cambridge, and dined at Trinity College.<sup>51</sup> After dinner, he was invited into the Combination Room as a guest of honour. The other guest of honour that evening was Horace François Bastien Sébastiani de La Porta (General Sébastiani; 1771–1851). *The Times* for 6 March 1816 reported that Sébastiani attended dinner at Trinity College “on Tuesday last,”<sup>52</sup> i.e. 27 February. Candolle records arriving in London the morning after the dinner, having travelled from Cambridge by stage-coach. Assuming, as seems likely, that Candolle’s visit to Trinity College coincided with Sébastiani’s, his attendance as a guest at a meeting of the Chemical Club therefore took place between 28

<sup>46</sup> John Hodgson to the Editor, 21 October 1816, *Newcastle Courant*, 26 October 1816, 2.

<sup>47</sup> Davy to Hodgson, 19 October 1815, DLP. For an earlier, partial text of this letter, see *Philosophical Magazine* 48 (1816), 351.

<sup>48</sup> *Mémoires et souvenirs de Augustin-Pyramus de Candolle* (Geneva: Cherbuliez, 1862), 264, 280.

<sup>49</sup> As Gilbert observes, here Candolle is mistaken: Blake, though a Fellow of the Royal Society (1807) and President of the Geological Society (1815–1816), was a barrister and economist with chemical interests.

<sup>50</sup> *Mémoires et souvenirs de ... Candolle*, 278.

<sup>51</sup> *Mémoires et souvenirs de ... Candolle*, 277–78.

<sup>52</sup> *The Times*, 6 March 1816, 4.

February and the end of March, when Candolle returned to Paris. The likeliest date of Candolle's visit to the Club is 26 March, the only last Tuesday of a month in this period.

The repeal of the income tax (also called the property tax, and first introduced in 1799 to reduce the mounting national debt owing to the war with France)<sup>53</sup> on 18 March 1816 was the cause of a highly convivial meeting of the Chemical Club shortly afterwards, as described by Marcet in a letter to Leonard Horner (1785–1864) dated 15 April 1816:

As for *us* philosophers, chemists, and scientific amateurs, we celebrated this event by generous libations of champagne at the Chemical Club. The two members who showed the most spirit upon that occasion were Dr. Wollaston (the Pope!) and myself. Being rather out of practice, we both exceeded a little the capacity of our brains, and as we rose from table, we discovered by certain vulgar symptoms, the fragility of our nerves. This excellent wine was the produce of a wager, which I won against Blake, who had bet two to one that the infernal Tax would pass, though he detested it nearly as much as myself.<sup>54</sup>

Considering the timing of dates, the likeliest date for this meeting is again 26 March, although it is possible that an extraordinary gathering was called sooner, on 19 March, at which chemical discussion took second place to the political developments of the previous day.

Having entertained Candolle as a guest early in 1816, towards the end of the year the Chemical Club also invited another celebrated man of science to one of its meetings: François Arago. A letter from Warburton to Marcet of 2 September (a Monday) confirms this invitation, as well as suggesting that “ordinary” gatherings of the Club were typically less bibulous than that which followed the repeal of the income tax several months earlier: “As we are not notorious debauchees in wine at the Chemical, perhaps you will defy the gout, and come there tomorrow, as I have asked G. Lupin & Arago to be present.”<sup>55</sup> The name “G. Lupin” is almost certainly a mistranscription, with the name “G. Lussac” presenting itself as an obvious substitute, i.e. Joseph Louis Gay-Lussac, with whom Arago had spent the summer of 1816 in London, the pair being “much in London scientific society.”<sup>56</sup> 1816 was also the year that Arago's and Gay-Lussac's joint editorship of *Annales de chimie et de physique* began.

The final reference to the Chemical Club from the year 1816 comes in a letter from Sebright to Marcet of 23 November, which, as Gilbert observes, demonstrates Sebright's continued and strong attachment to the Club:

<sup>53</sup> The tax was briefly repealed during the Peace of Amiens, but reinstated in 1803 when hostilities resumed.

<sup>54</sup> *Memoir of Leonard Horner: Consisting of Letters to His Family and From Some of His Friends*, ed. Katherine M. Lyell, 2 vols. (London: Women's Printing Society, 1890), vol. 1, 93.

<sup>55</sup> Warburton to Marcet, 2 September 1816, transcription in Gilbert Papers. The original letter has not been traced.

<sup>56</sup> Elizabeth Chambers Patterson, “A Scotswoman Abroad: Mary Somerville's 1817 Visit to France,” in *The Light of Nature: Essays in the History and Philosophy of Science Presented to A. C. Crombie*, ed. J. D. North and J. J. Roche (Dordrecht: Martinus Nijhoff, 1985), 321–62, on 325.

I am sorry to say that I must attend a Ball at Hertford, instead of the Club on the 3<sup>d</sup> Dec<sup>r</sup> ... There is nothing I like so much as the Club, & nothing I hate so much as the Hertford Ball, but after so long an absence I must show myself a little in the County.<sup>57</sup>

Sebright was MP for Hertfordshire between 1807 and 1834, and 3 December 1816 was a Tuesday. The Club having hosted, among others, Dalton, Hope, Berzelius, Arago, and Gay-Lussac over the past seven years, the keen student of chemistry Sebright's antipathy towards a night at the Ball is understandable.

## The late years, 1817–1828

In the last twelve documentable years of the Chemical Club's existence, it continued to fulfil both its scientific and social functions: the latest discoveries, from the laboratory, and from expeditions to the unexplored regions of the earth, were discussed at its meetings, and food and drink were shared among friends. New members were admitted, and older members left. With the death of Howard in September 1816, the first generation of Chemical Club members began to give way to the second. A letter from Marcet to Berzelius dated 11 July 1817 gives notice of a new member of the Chemical Club: William Macmichael, now most frequently remembered as the author of the "autobiography" *The Gold-Headed Cane* (1827):

I congratulate you on your discovery of a new earth.<sup>58</sup> I saw it in a mineral that was shown to me by Macmichael. When you come back to see us, you will find said Macmichael a member of the Chemical Society, and it is certainly to you that he owes this advantage.<sup>59</sup>

Macmichael's description of the Royal Society Club as a place where "you are sure of meeting with very indifferent cheer"<sup>60</sup> is perhaps telling: were meetings of the older Royal Society Club too staid and stuffy compared to the meetings of the newer Chemical Club? Did the Chemical Club offer *both* "cheer" and "excellent company" in good measure, rather than merely the latter, which Macmichael noted of the Royal Society Club? While Macmichael makes no direct reference to the Chemical Club in his book, the brief portrait of the Royal Society Club given therein must have been informed by (at least in opposition to) his experiences of the occasionally raucous Chemical Club. In the letter to Berzelius, Marcet refers to the Chemical Club, inaccurately, as the Chemical Society, as Sebright had done in 1814. That it is indeed the Chemical Club being referred to, rather than another Chemical Society, is strongly suggested by Marcet's prominent role in the Club, and his referring to Berzelius "com[ing] back to see us" following the latter's visit of 1812. Macmichael had conducted research in chemistry and

<sup>57</sup> Sebright to Marcet, 23 November 1816, transcription in Gilbert Papers. The original letter has not been traced.

<sup>58</sup> The "new earth" was "thorine," later found to be a phosphate of yttrium.

<sup>59</sup> Marcet to Berzelius, 11 July 1817, *Berzelius Bref*, vol. 3, 153.

<sup>60</sup> William Macmichael, *The Gold-Headed Cane: A Facsimile of the Author's 1827 Copy Illustrated and Interleaved With His Own Amendments and Additions, a Preface by Sir Max Rosenheim ... and Introductory Notes by Thomas Hunt* (London: Royal College of Physicians, 1968), 135.

mineralogy in Stockholm in 1813–1814,<sup>61</sup> and was a friend of both Berzelius and Marcet. Shortly after Macmichael's departure from Sweden in early 1814, Berzelius wrote of him: "Macmichael pleased me a lot, he is one of the most excellent men I have ever known. I do not have a single grievance against him, except that he left me so soon."<sup>62</sup> From Marcet's comments, Berzelius, as a long-standing friend of the Chemical Club, had clearly exerted some indirect influence on Macmichael's gaining membership.

Evidence of the Chemical Club's activities in 1818 is scarce. William Buckland dined at the Club at the close of the year, as Wollaston's guest. In a letter to Lady Mary Cole (1776–1855) of 14 December 1818, Buckland writes of the "extensive irregular patches of red snow"<sup>63</sup> discovered on Captain John Ross's (1777–1856) Arctic expedition of April–November 1818. Writing again to Cole on 29 December, Buckland observes:

[I]f red Snow and Mosses were portable in a letter I w<sup>d</sup> certainly have sent you some ... D<sup>r</sup> Wollaston has examined with his usual accuracy the colouring matter of this Snow water & after repeatedly washing the colouring particles ... finds them to contain no uric Acid & consequently to ... want the only Evidence of animal Origin ... After Washing, D<sup>r</sup> Wollaston finds the red Particles to give Evidence only of vegetable origin & is inclined to derive them from fuci drifted by winds to the Shore ... I dine to day with D<sup>r</sup> Wollaston at the Chemical Club where I may possibly hear more of it.<sup>64</sup>

The cause, as is now known, of "red snow" (sometimes called "watermelon snow" or "blood snow") is algae of the species *Chlamydomonas nivalis*, which contains a red pigment in addition to chlorophyll. 29 December 1818 was a Tuesday, and the last Tuesday of the month. There are no records of any meetings in 1819; this is more likely due to the fragmentary records of the history of the Chemical Club rather than inactivity.

Evidence of the Chemical Club resumes in 1820, with four mentions of it, all in letters to Marcet, who was in Switzerland at this time. The first is from Bostock, dated 14 January. In it, Bostock comments that "Bright" (presumably Richard), who would succeed the recently deceased James Curry (1763–1819) in a physician's post at Guy's Hospital, "is elected a member of our club, to which he will form a very valuable addition."<sup>65</sup> If the "club" referred to is indeed, as seems likely, the Chemical Club, then two new members may be added to the roll in 1820: Bostock and Bright. The second letter, from Babington, dated 23 March, relates some

<sup>61</sup> "Macmichael, William (1783–1839)," ODNB.

<sup>62</sup> Berzelius to Marcet, 12 April 1814, *Berzelius Bref*, vol. 3, 95.

<sup>63</sup> [Elizabeth Oke Gordon], *The Life and Correspondence of William Buckland* (London: John Murray, 1894), 45. Pictured in the centre of George Cruikshank's 1819 cartoon "Landing the Treasures, or Results of the Polar Expedition!!!" is a small barrel labelled "Red Snow 4 B M," being carried from the landing point towards the British Museum.

<sup>64</sup> Buckland to Lady Mary Cole, 29 December 1818, National Museum of Wales, De la Beche Archive, NMW 84.20G.D.149. There is a partial transcription of this letter in Gilbert Papers, Box 1, Item B, File 2, Enclosure B, Letter No. 7. I am grateful to Frank James for helping me to trace the original letter.

<sup>65</sup> Bostock to Marcet, 14 January 1820, transcription in Gilbert Papers. The original letter has not been traced.



information regarding Sebright: “He was not at our last Chemical Club being under the necessity of absenting himself on account of his Election.”<sup>66</sup> As Gilbert observes, this suggests a meeting on 29 February, when Parliament was dissolved, and the last Tuesday of the month, or after.

Babington wrote to Marcet again, in the third letter, on 7 September, referring to Ørsted’s recent discoveries in electromagnetism, and again mentioning the Chemical Club:

You will probably in the next quarterly Journal of Science have an account of the extraordinary effects of Galvanism over the magnetic needle.<sup>67</sup> They were spoken of by Wollaston at our last Meeting of the Chemical Club as the discovery of a foreign Professor whose name I cannot recollect.<sup>68</sup>

Babington’s remark reveals the rapidity with which new chemical news became known among members of the Club. Ørsted’s discoveries were published in a four-page pamphlet, in Latin, dated 21 July 1820.<sup>69</sup> 7 September 1820 was a Thursday, so the meeting Babington refers to would have been held on Tuesday 5 September, or, more likely, being the last Tuesday of the month, 29 August 1820. News of Ørsted’s findings (the transmission of which was not, of course, aided by the format of its publication) did not reach the Académie des Sciences in Paris until 4 September 1820, when Arago brought news of it.<sup>70</sup> That the small, informal Chemical Club had discussed Ørsted’s research before a report of it had reached a major learned society shows just how close to important emergent scientific research the activities of the Chemical Club were.

The final letter bearing news of the Chemical Club to Marcet in Switzerland is from Wollaston, dated 4 December. In it, Wollaston confirms the receipt of a letter from Marcet on “Tuesday 28 Nov<sup>r</sup> the last in the month & of course the day of a Chemical Club.”<sup>71</sup> While most Club meetings did indeed fall on the last Tuesday of the month (as we have noted), some meetings took place on other Tuesdays (such as the gathering on 3 September 1816 to which Warburton invited Arago and Gay-Lussac). At the meeting of 28 November 1820 mentioned by Wollaston, Gilbert notes that the members drank the absent Marcet’s health in two bottles of champagne that Wollaston had won from Sebright the previous month. Gilbert’s source, however, is not known. As champagne was consumed at the meeting of the Chemical Club following the repeal of the income tax in 1816, Marcet overindulging particularly on that occasion, it does not seem implausible that the

<sup>66</sup> Babington to Marcet, 23 March 1820, transcription in Gilbert Papers, Box 4, File 1, Enclosure A, 13. The original letter has not been traced.

<sup>67</sup> “On the Connexion of Electric and Magnetic Phenomena,” *Quarterly Journal of Science, Literature, and the Arts* 10 (1821): 361–64, on 361–62.

<sup>68</sup> Babington to Marcet, 7 September 1820, transcription in Gilbert Papers. The original letter has not been traced.

<sup>69</sup> Hans Christian Ørsted, *Experimenta circa effectum conflictus electrici in acum magneticam* [*Experiments on the Effect of the Electric Conflict on the Magnetic Needle*] (Copenhagen: Typis Schultzianis, 1820).

<sup>70</sup> For a detailed discussion, see Kenneth L. Caneva, “Ampère, the Etherians, and the Oersted Connexion,” *British Journal for the History of Science* 13 (1980): 121–38.

<sup>71</sup> Wollaston to Marcet, 4 December 1820, transcription in Gilbert Papers. The original letter has not been traced.

members assembled would toast their absent friend, and long-standing Club member, with the same “excellent wine,” again “the produce of a wager,” following his departure from England.

By 1821 the Chemical Club was clearly in decline. There is only one mention of the Club in this year, in a letter from Babington to Marcet of 7 September 1821:

At our last meeting of the Chemical Club the only members present were Sir John [Sebright], Wollaston, [illegible; possibly ‘Roget’] and myself. We drank your health but I believe I was the only one who did so in a bumper<sup>72</sup> though I must not presume to say that this could arise from a proportionally greater regard.<sup>73</sup>

The date of this meeting is unknown, but the last Tuesday of August (the twenty-eighth) is likely. There is then a lengthy gap of five years in the history of the Club, during which time Marcet, its earliest traceable member and clearly a very active one, died (in 1822). The final known reference to the Chemical Club by any of its members comes in a letter from Davy to Bostock, who is identified at the close of the letter as “Treasurer Chem. Club.”<sup>74</sup> Davy apologises to Bostock for failing to keep up with his subscription: “I misunderstood the regulations of the Chemical Club, or I certainly should not have suffered so large a sum for arrears as 24£ to accumulate.” He also apologises for not being able to attend a meeting of the Club tomorrow, i.e. on 25 April, and a later meeting in May. Davy’s attendance at the Club has apparently been sporadic, and he wonders whether the Club will allow him to continue as a member who attends only infrequently:

If the members choose [*sic*; ?approve] of such absences & of such notices of absence being given, I shall gladly avail myself of the chance of a time of more leisure when I may be able occasionally to profit of the privilege of dining with the club, but if not you will be so good as to consider me no longer a member.

Davy closes the letter with “expressions of sincere respect for ... the Chemical Club.”<sup>75</sup>

There are, Gilbert notes, several entries in Wollaston’s bank accounts, taken in conjunction with Davy’s observation that Bostock was the Chemical Club Treasurer in 1826, that suggest that the Club was still in operation at the end of 1827. In Wollaston’s accounts, which date back to 1797, there are six payments of four pounds: the first on 7 October 1820, to “Treasurer”; the second on 2 April 1821, to “Dr

<sup>72</sup> “A cup or glass of wine, etc., filled to the brim, *esp.* when drunk as a toast,” *OED*.

<sup>73</sup> Babington to Marcet, 7 September 1821, transcription in Gilbert Papers, Box 4, File 1, Enclosure A, 13. The original letter has not been traced.

<sup>74</sup> Davy to Bostock, 24 April [1826], DLP. The original letter has not been traced, and, at present, exists in the form of a photocopy (the first page) and two transcriptions (the entire letter) only.

<sup>75</sup> Regarding the dating of this letter, Bostock, identified by Davy as the Treasurer of the Club at this time, did not leave Liverpool for London until 1817. Between 1817 and 1829, the year of Davy’s death, 25 April fell on a Tuesday in 1820 and 1826 only. In late April 1820, Davy was travelling in Italy. Throughout April 1826, he was in London. Of the two possibilities, therefore, 1826 is by far the more likely.

McMichael” [*sic*]; and the third, fourth, fifth, and sixth, all to “Dr Bostock,” on 10 May 1824, 8 November 1825, 6 April 1827, and 22 December 1827. There are no other payments of four pounds in Wollaston’s accounts, and the £24 Davy owed in 1826 is a multiple of four. It seems likely, therefore, that these four-pound payments are Chemical Club subscriptions. It may also be the case that Macmichael, who had received four pounds from Wollaston, preceded Bostock as the Club Treasurer. According to Usselman, Wollaston attended a Chemical Club meeting, some six months before his death, on Tuesday 17 June 1828.<sup>76</sup> No later date for any activities of the Chemical Club has been traced. By the time of Wollaston’s death, Davy was gravely ill in Rome; he too would soon die, some five months later. With the deaths of Wollaston and Davy, the Chemical Club, already weakened by the death of Marcet, lost, almost at a stroke, its two most eminent and long-standing members. It was a loss from which the Club apparently did not recover.

## Conclusions

Although this history of the Chemical Club is necessarily fragmentary due to the limited records of the Club, we have provided at least the outlines of a considerably fuller picture. In drawing conclusions from this exposition, a helpful framework is provided by Ian Inkster, who delineates four levels of organisation of scientifically related institutions in London during the 1820s: the most elite level, represented by the Royal Society and the Royal Institution; entities of the merchant and industrial middle classes, such as the City Philosophical Society;<sup>77</sup> those more representative of middle-class popular science; and those devoted to the diffusion of science to the working classes, such as the Mechanics’ Institutes.<sup>78</sup> Regarding these categories, the Chemical Club occupied a somewhat anomalous position. In social and intellectual terms, it certainly fell into Inkster’s first, “elite” category. A distinction must be drawn, however, between formal entities such as the Royal Society and the Royal Institution, and less-formal ones such as the Chemical Club. But informality of structure, aim, and function need not entail amateurishness: as we have seen, the Chemical Club exhibited what Inkster calls a “level of creativity which impinged upon the intellectual direction of science,”<sup>79</sup> especially during its middle years, as the nitrogen trichloride episode of 1812 and the safety lamp episode of 1815 attest. Moreover, it appears that a Royal Society Fellowship was a virtual entry requirement, except in Sebright’s case. The Club’s discussion of Ørsted’s discoveries in electromagnetism before news had reached the Académie des Sciences shows that, even in instances

<sup>76</sup> Usselman, *Pure Intelligence*, 343; source unknown.

<sup>77</sup> Frank A. J. L. James, “Michael Faraday, the City Philosophical Society and the Society of Arts,” *Royal Society of Arts Journal* 140 (1992): 192–99.

<sup>78</sup> Inkster, “Science and Society in the Metropolis,” 14–15.

<sup>79</sup> Inkster, “Science and Society in the Metropolis,” 14.

when the Club was *not* directly influencing the intellectual direction of science, its members were nevertheless very close to the leading edge.

At best, the structure of the Chemical Club could be described as semi-formal. It lacked a constitution (whereas clubs of a similar size, such as the Animal Chemistry Club, had such),<sup>80</sup> and record-keeping was apparently not a priority. The only “office” of which there is a record is that of Treasurer – the most basic requirement for a dining club, to manage the costs of meeting, such as paying for food and drink. Regarding the lack of records, it is possible that more detailed records existed, but have not survived or not yet come to light, or, alternatively and much more probably, that they were never kept. Given, as I have argued, that the Chemical Club emerged from a radical period of reaction against that which had gone before, it is perhaps not surprising that this “new” Club elected not to keep the detailed records that characterised the “old” Thursday’s Club of the Royal Philosophers. In short, the members of the Chemical Club decided that *their* club would be different. Of the subsequent X Club (*fl.* 1864–1893), which counted Thomas Henry Huxley, Herbert Spencer, and John Tyndall among its members, it is often repeated that the only rule was that there were no rules. This reaction against existing, rigid, formal institutional practice can now apparently be traced back further, to the time of the Chemical Club.

Although this article has focused on one of the early nineteenth-century scientific dining clubs in isolation, Inkster reminds us that it was “the multiplication many times over of such groupings [that] served strongly to influence the organisation of science in London throughout this period.”<sup>81</sup> Indeed, it is true that the Chemical Club was just one club among many. Even so, the Club of Davy, Wollaston, Marcet, *et al.* must, despite the club scene becoming increasingly crowded, be considered something of a special case. As its scant, but important, records show, during the years of its existence no other club of its size had a greater influence on the intellectual direction of chemistry in Britain.

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<sup>80</sup> Coley, “Animal Chemistry Club,” 174–75.

<sup>81</sup> Inkster, “Science and Society in the Metropolis,” 31.

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