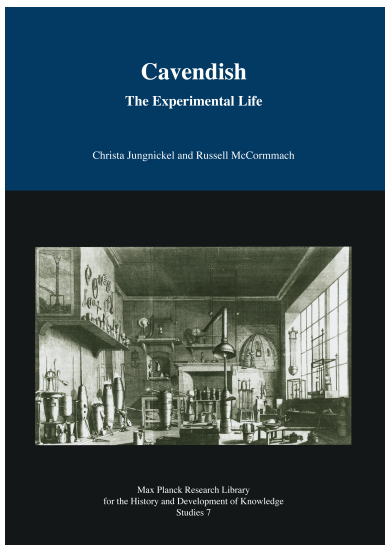


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Christa Jungnickel and Russell McCormach:
Associates



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Chapter 12

Associates

Charles Blagden

Around the time of his father's death, Henry Cavendish acquired a helper, Charles Blagden (Fig. 12.1). Wilson called Blagden Cavendish's "assistant,"¹ which he was, but his part in Cavendish's affairs was more extensive than what we normally think of as an assistant's. He was a professional man, a physician, and a scientific colleague, and he was also a confidant, who knew personal things about Cavendish such as his income and the terms of his will. For these reasons and to distinguish him from the young men Cavendish occasionally hired to assist him, we speak of him as Cavendish's "associate." His relationship to Cavendish being unique, he holds our attention for what he can tell us about our subject.

A man of modest means and talent, unlike Cavendish in both respects, Blagden made for himself a suitable place in science. Born in 1748 in a village in Gloucestershire, he studied medicine at the University of Edinburgh, where he received a good introduction to science from lecturers who included William Cullen and Joseph Black, two of the most eminent scientific men of their day. Among Blagden's papers is a copy of Black's lectures, partly written in Blagden's hand, together with a testimonial by Black saying that Blagden attended his lectures. Cullen thought highly of Blagden, describing him as "a man of very great worth," who was "very much in my family."²

In 1768 Blagden graduated with an M.D. The following year he was informed of an "immediate opening for a physician at Gloucester" created by the departure of one of the two physicians at the infirmary. In this way, he began his life as a physician close to where he grew up.³ His correspondence from the time tells of his interest in acquiring scientific instruments. A London friend ordered for him an electrical machine from Ramsden, which he may have used on his patients, and a microscope with a lens made by the optical instrument maker Peter Dolland.⁴ He was interested in learning foreign languages. His friend looked in bookstores for a German grammar for him, and after inquiring at twenty bookstores he found a two-volume French and German grammar, printed in Paris. A bookstore that had the *Journal de Medecin* had no German books on medicine, but it would order them.⁵ Blagden was restless in Gloucester, wanting to be where the world-class instrument makers and bookshops were. His London friend tried to dissuade him from leaving Gloucester, where he had the opportunity of "reducing theory to practice." Dutifully having made inquiries for

¹Wilson (1851, 129).

²William Cullen to William Hunter, 11 Feb. 1769, in John Thompson (1859, 555–556).

³Henry Cumming to Charles Blagden, 7 Nov. 1769, Blagden Letters, Royal Society, C.72. J. Smart to Charles Blagden, 22 Sep. 1769, *ibid.*, S.11.

⁴Jesse Ramsden to Charles Blagden, 23 Nov. 1769, *ibid.*, R.40.

⁵Henry Cumming to Charles Blagden, 26 Mar. 1767. Thomas Curtis to Charles Blagden, 26 Dec. 1769, 7 Jan., 8 Feb. 1770, *ibid.*, C.77–79.

him, his friend learned that leading London physicians such as William Heberden earned between £2000 and £4000 annually, perhaps more, but that a physician was at a great disadvantage if he was not at least thirty, and if he did not graduate from an English university. He advised Blagden that to be taken seriously, he should wait four or five years or longer and probably get an Oxford degree before setting up practice in London.⁶ Not long after, in early 1772 another friend wrote to Blagden concerned that he had left Gloucester where many people had “conceived so good an opinion” of him that they preferred him to the older physician in the infirmary; but he realized that Blagden’s happiness lay with the “great town where all of your interests centered.”⁷

In London Blagden soon expanded his connections with science, which led to his election to the Royal Society in 1772. It is in connection with that body that he made his main contributions to science, which included a number of scientific researches appearing in the Society’s *Philosophical Transactions*. His preferred subject was heat, a specialty of his professors in Edinburgh, and one of Cavendish’s major interests. His first two published papers dealt with the physiological side of heat, bridging his medical and scientific interests. Cullen taught that animals have the power of “generating cold,” and while Blagden was in Edinburgh, he made a “rude experiment” with a thermometer and a frog to observe the power. In response to a request from a colleague “to observe the effects of air heated to a much higher degree than it was formerly thought any living creature could bear,” Blagden together with several other fellows of the Royal Society entered a closed room containing a red-hot cast iron stove, where they remained for various lengths of time. The room was heated to over 260°, hot enough to roast beef and harden eggs, while all the time their body temperature remained normal. Evaporation of sweat helped to cool them, but it could not account for the exact preservation of their body temperature. The experiments proved, Blagden said, “in the clearest manner, that the body has a power of destroying heat” arising from the “principle of life itself,” disproving common theories of the generation of heat in animals held by the “mechanical and chemical physicians.” The experiments were repeated to determine the effect of clothing, using even higher temperatures. Blagden called the heated room an “instrument,” useful to a physician to produce sweating in treating ailments.⁸ The experiments demonstrated courage of conviction, but being directed to physiology and to medicine and concerned with the principle of life, they did not directly relate to Cavendish’s interests.

Wilson and the author of a biographical article on Blagden said that it is unknown how Blagden became acquainted with Cavendish, how he came to work with him in 1782, and why they parted in 1789.⁹ While we cannot answer these questions completely, we have a fair idea. Blagden met Cavendish at the Royal Society Club, where he dined as a guest several times in the fall and winter of 1773, and again several times in 1774 and 1775.¹⁰ The first documented scientific connection between Blagden and Cavendish came about in the year of Blagden’s last experiments in a heated room, 1775. The war with the American Colonies had begun, and Blagden was scheduled to go to North America as an army surgeon. Cavendish advised him to compare the temperature of the air with the temperature of the sea on his journey there and when he arrived to take the temperature of wells and springs

⁶Thomas Curtis to Charles Blagden, 15 Jan. 1770, *ibid.*, C.78.

⁷J. Smart to Charles Blagden, 24 Feb. 1772, *ibid.*, S.16.

⁸Charles Blagden (1775a, 112, 119, 122; 1775b, 493).

⁹Wilson (1851, 128–29). Frederick H. Getman (1937, 70–71).

¹⁰He was elected to the Club in 1780. Geikie (1917, 122, 125, 127, 148).

as a way of estimating the mean temperature of the climate. Under the conditions of war, Blagden was unable to make many observations of wells and springs, but he succeeded in measuring the temperature of the sea, leading to his discovery of the Gulf Stream and to another publication in the *Philosophical Transactions*. Having determined that the temperature of the Gulf Stream was several degrees warmer than that of the surrounding sea, he proposed that seamen add the thermometer to their navigational instruments.¹¹ We see that by 1775 Blagden was already Cavendish's scientific collaborator, that he had an interest in instruments, and that he was able to make careful observations and interpret them.

In North America, Blagden could hear the heavy guns of Hudson River forts firing on British ships. He went ashore in New York, not far from the action, a cannon shot passing through his house and raising the floor of his room. He witnessed great confusion in the city, flames rising in much splendor over a horrible scene. He sent back to England plant and animal specimens, in return for which Banks sent him scientific news and a book just published, perhaps for its relevance to Britain in its peril, volume one of Edward Gibbon's *Decline and Fall of the Roman Empire*.¹² Blagden longed to return to England and to the scientific life he had begun there. Upon rumors of peace, he expected to return in the summer of 1778, but the war took an unfavorable turn, and by the fall he was convinced that Britain should quit the war. In the hope of "soon leaving this accursed scene of disgrace,"¹³ he appealed to General Charles Cornwallis, who gave him permission to return in late 1779. By June 1780, he was in Plymouth working in a military hospital.¹⁴ C.J. Phipps, who a few years before had made a voyage of discovery towards the North Pole, offered to help Blagden's medical career through his connections with the admiralty,¹⁵ but that was not the life Blagden saw for himself. In November 1781, he was in London in time to attend elections at the Royal Society.

While Blagden was in North America, Cavendish was on his mind; he wrote to Banks, who was then president of the Royal Society, asking why Cavendish was left off the Council in 1778.¹⁶ Soon after his return, on March 9, 1782, Blagden had breakfast at Cavendish's house, the first mention in his diary of a visit.¹⁷ He was still a regimental surgeon,¹⁸ and in June he was called back to Plymouth.¹⁹ In July he wrote to Banks that he would like to "live as much as I can among books," wondering if the Royal Society would make a position for him such as "Inspector of the Library, or something of that sort," with apartments next to the Royal Society's in Somerset House. He would be willing to pay or to superintend the library in exchange, but Banks told him it was not possible to use the apartments for any purpose other than what they were meant for.²⁰ In November he wrote to Banks that he endured the "miserable exile here only with the hope of soon returning to your society, in which all the

¹¹ Charles Blagden (1781, 334, 341–44). A more complete statement of Cavendish's part in this discovery is in the draft of a paper in Blagden Papers, Yale, box 2, folder 26.

¹² Charles Blagden Diary, 1776–1779, Yale

¹³ Charles Blagden to Joseph Banks, 12 June 1778, 20 Oct. 1778, Natural History Museum, Botany Library, Dawson Turner Collection 1:191–192, 228–229. Hereafter BM(NH), DTC.

¹⁴ Charles Blagden to Joseph Banks, [21 June 1780], *ibid.* 1:290–291.

¹⁵ C.J. Phipps, Lord Mulgrave to Charles Blagden, 1 Mar. 1780, Blagden Letters, Royal Society, B.35.

¹⁶ Charles Blagden to Joseph Banks, 2 Mar. 1778, BM(NH), DTC 3:184–185, on 184.

¹⁷ 9 Mar. 1782, Charles Blagden Diary, Royal Society, 1.

¹⁸ 15 May, 14 Aug. 1782, Charles Blagden Diary, Royal Society, 1.

¹⁹ Charles Blagden to Joseph Banks, 30 June, 3 Nov. 1782, BM(NH), DTC, 2:147–150, 205–206.

²⁰ Charles Blagden to Joseph Banks, 19 July 1782, draft; Joseph Banks to Charles Blagden, 19 Aug. 1782, Blagden Letters, Royal Society, B.8a and 9.

comfort of my life is centered.”²¹ Two weeks later he was back in London; he would not return to Plymouth.

As he had promised Cavendish before he left for war, Blagden bottled air in Plymouth in all kinds of weather. In his diary for 28 November 1782, he noted that he assisted Cavendish in testing the bottled air with a eudiometer at his new house in Hampstead,²² the first entry in his diary pointing to a formal association. The next entry is in December, when he went again to Hampstead to dine with Cavendish and to look over the Hudson’s Bay experiments on the freezing of mercury,²³ and that same month Cavendish advised him to draw up an historical account of the freezing of mercury for the *Philosophical Transactions*. In his diary in December, Blagden recorded Cavendish’s idea that dephlogisticated air is only water deprived of phlogiston, his principal conclusion from a long series of experiments on air.²⁴ The next time Blagden mentioned his assistance to Cavendish in his diary was in January 1783, when before dining with a club, the two of them measured the thermometer tubes used at Hudson’s Bay to freeze mercury.²⁵ He recorded that on 26 February Cavendish froze mercury without the aid of Hudson’s Bay weather. Caught up in this work, Blagden froze a finger white several times while experimenting on freezing mixtures.²⁶ Such was the beginning of Cavendish and Blagden’s association, and all indications are that it went well. On Thursdays when Cavendish did not attend the dinners of the Royal Society Club, neither did Blagden, the two clearly having a common activity keeping them away.²⁷

In May 1783, Blagden went on half pay as an army physician.²⁸ In June and July, he visited Paris for the first time, noticing things that catch a visitor’s eye such as people walking on dirty streets wearing their hair highly dressed. More important, he dined with Lavoisier, who showed him experiments.²⁹ Blagden’s papers contain a list of people to meet in Paris, who included Laplace, Lagrange, Coulomb, and Berthollet. Without knowing it, he was preparing himself for the role he would play as a conveyor of scientific information between England and France.

After Blagden had declined Phipps’s offer to help him in his medical career, a similar opportunity came up in October 1783, this one definite and remunerative. Heberden informed Blagden that he could replace the “chief Physician” in Canterbury, where there were “many Gentlemen’s families in the neighborhood,” the previous physician being “supposed to have got about 1000 guineas annually.” Blagden again declined, and explained why: “My views are so little turned towards wealth and so earnestly fixed upon objects which can scarcely be obtained out of the capital, that I feel I could not be happy, for the present at least, in any engagement which should remove me to a distance from London.” He thanked Heberden, filling the rest of his letter with scientific news, in keeping with his refusal.³⁰ Blagden told Banks that he was not “at a loss for a moment” how to respond to

²¹ Charles Blagden to Joseph Banks, 3 Nov. 1782, BM(NH), DTC 3:205–206, on 205.

²² Blagden to Banks, 3 Nov. 1782. Entry for 28 Nov. 1782, Charles Blagden Diary, Royal Society, 1.

²³ 17 Dec. 1782, Charles Blagden Diary, Royal Society, 1.

²⁴ 23 Dec. 1782, *ibid.* An ahistorical translation of this statement is: oxygen is only water deprived of hydrogen.

²⁵ 21 Jan. 1783, Charles Blagden Diary, Royal Society, 1.

²⁶ 25 Feb. 1783 and following entries, *ibid.*

²⁷ For the 1780s: Minute Book of the Royal Society Club, Royal Society, 7.

²⁸ Letter from the war office: FitzPatrick to Charles Blagden, 7 May 1783, Blagden Letters, Royal Society, F.10.

²⁹ 7 June 1783, Charles Blagden’s diary of his travels in France in 1783, Blagden Papers, Yale, box 1, folder 3.

³⁰ William Heberden to Charles Blagden, 7 Oct. 1783, Blagden Letters, Royal Society, H.23. Charles Blagden to William Heberden, 8 Oct. 1783, *ibid.*, H.23.a. These two letters are also published in Ernest Heberden (1985, 185).

Heberden's offer, even though he realized that by declining he would "never hereafter either have an opportunity or inclination to resume" the practice of medicine. He anticipated being "employed in far different occupations."³¹

Two days after informing Banks of his decision, Banks told him that he wished he were one of the secretaries of the Royal Society instead of the person who had the job, and that he had thoughts of doing something about this.³² In late spring 1784, with Banks's backing, Blagden was elected secretary, which came with a small salary. Blagden, it seems, had realized his desire. He was at the center of scientific activity in the nation's capital, the right-hand man of the president of the Royal Society, the secretary in charge of the Society's *Philosophical Transactions*, a correspondent with scientists around the world, and the associate an eminent man of science, Cavendish.

At the time that Blagden and Cavendish came together, both were single and resetting, Cavendish in midlife at fifty-one, and Blagden in a change of career at thirty-four. Cavendish would have been drawn to Blagden for what Boswell called his "copiousness and precision,"³³ which were, after all, traits of Cavendish's too. The author of a profile of Blagden said that he was "very methodical in his *work* and permitted no interruption to his daily routine," in which respect he again was like Cavendish, and that he was good at "arranging and expounding data, a qualification which made him of great value to Cavendish."³⁴ Because of his office in the Royal Society and his regular attendance at Banks's social gatherings and at meetings of scientific clubs, he was well informed about what went on in science. "It is scarcely possible that any ph[ilosophical] discoveries can be made in England without coming to my knowledge by some channel or another," he wrote to a foreign colleague.³⁵ With his facility in foreign languages, his frequent visits abroad where he met with scientific men, and his extensive foreign correspondence, he was almost equally well informed about research abroad. Robert Brown said that he was "au courant du jour" in following the progress of the sciences. The French archeologist and engineer Edme François Jomard said he was also "au courant" on a wider range of activities, such as new voyages, new industrial discoveries, and new productions of all kinds.³⁶

During the time he acted as Cavendish's associate, and because of it, he became involved in a controversy over the discovery of the composition of water, whether it belonged to Cavendish, Watt, or Lavoisier. His integrity was called into question, but his accusers were wrong, and unbiased colleagues such as Thomas Thomson and Robert Brown understood him to be an honorable man.³⁷ He was conscientious, loyal, and accessible when Cavendish wanted his help. He "was not a man of genius," Wilson said, "his writings displayed no originality, nor has he any place among the discoverers of science,"³⁸ but his limitations may have been an asset. Lacking a strong scientific direction of his own, Blagden effortlessly entered into Cavendish's scientific life.

³¹ Charles Blagden to Joseph Banks, 16 Oct. 1783, BM (NH), DTC 3:127–131, on 127.

³² Joseph Banks to Charles Blagden, 18 Oct. 1783, Blagden Letters, Royal Society, B.21.

³³ James Boswell (1821, 4:309).

³⁴ Getman (1937, 74).

³⁵ Charles Blagden to Benjamin Thompson, 7 Feb. 1786, draft, Blagden Letterbook, Yale.

³⁶ Wilson (1851, 132).

³⁷ *Ibid.*, 135.

³⁸ *Ibid.*, 132.

Samuel Johnson called Blagden a “delightful fellow,” but that is not the impression he often made. One of Wilson’s sources called him “formal,” another called him “stiff,”³⁹ the chemist Humphry Davy found him “cold & selfish.”⁴⁰ A close friend of the historian Edward Gibbon, whom Blagden visited abroad, described him as “the scientific, but most conceited and pedantic ex-secretary of the Royal Society, whom I first saw, and learned to dislike, at a great supper at my friend Mr Freudenreich’s at Berne in 1788.”⁴¹ Generalizing from a number of impressions, Wilson described Blagden as “a somewhat formal and ungenial person, more an object of respect than of love,” a description which, to be sure, applied to many men of science, and definitely to Cavendish.⁴² Blagden’s and Cavendish’s impenetrable exteriors, which were received by others as asocial, may have played a constructive role in their relationship, keeping them focused on the common work at hand.

Blagden’s association with Cavendish was recognized. In a letter to Blagden in 1785, Banks asked him to give his compliments to Cavendish, toasting them, “May success attend all your mutual operations.”⁴³ Their association was mutually advantageous: Cavendish received assistance in his experiments and in other scientific activities, and in return Blagden received several benefits. First, Blagden got attention for assisting a renowned researcher. After Cavendish’s death, Robert Stewart, Lord Castlereagh listed Blagden’s qualifications in science: he had published a number of papers, he had been secretary of the Royal Society, and he had been “an intimate friend of the late Mr. Cavendish.”⁴⁴ Second, Blagden profited scientifically. Of the ten substantial papers he published in the *Philosophical Transactions*, four originated with Cavendish’s line of research, and two others were done with Cavendish’s help.⁴⁵ Blagden was awarded the Copley Medal of the Royal Society for his last original research, on the freezing points of solutions, a subject Cavendish was then investigating.⁴⁶ Blagden’s published research came to an end with his break with Cavendish.

A third benefit was a supposed annuity of £500 settled on him by Cavendish. Several early writers state this as fact, and one of them says that the annuity came with the condition that Blagden discontinue his practice of medicine.⁴⁷ Both of these statements are subject to question. Over the six years for which we have Blagden’s financial records, 1785–90, which overlap the years he was Cavendish’s associate, we see that his income came from three sources: his half pay from the army, his salary from the Royal Society, and dividends from his securities, which included and may have consisted entirely of Scotch bonds. From his financial records, we find no direct evidence of an annuity, but in 1789 he deposited £1400 from the sale of a house he bought while working for Cavendish.⁴⁸ An annuity or its

³⁹Wilson’s sources were Robert Brown and Mr. Caddell. Ibid.

⁴⁰Davy said the same thing about Cavendish. J.C. Fullmer (1967, 133).

⁴¹Sylvester Douglas, Lord Glenbervie, F.R.S., in his *Diaries* (London, 1928), quoted in G.R. De Beer (1950, 76).

⁴²Wilson (1851, 133).

⁴³Joseph Banks to Charles Blagden, 28 July and 4 Aug. 1785, Blagden Letters, Royal Society, B.35 and 36.

⁴⁴Lord Castlereagh to Charles Stuart, 13 July 1819, copy, Blagden Letters, Royal Society, C.6.

⁴⁵Cavendish’s involvement in Blagden’s scientific work is documented in Blagden’s publications and in his manuscripts, which contain pages written in Cavendish’s hand. In counting ten papers in the journal by Blagden, two papers are omitted: an extract from a letter by Blagden on the tides at Naples in 1793, and an appendix to Ware’s paper on vision in 1813.

⁴⁶Blagden developed a simple quantitative relation, the lowering of the freezing temperature of a solution is proportion to the quantity of solute, known to this day as “Blagden’s Law.”

⁴⁷A £500 annuity was mentioned by Blagden’s brother John Blagden Hale, Thomas Thomson, and Henry Brougham. The latter said that Cavendish insisted that Blagden abandon his practice of medicine. Wilson (1851, 133, 142, 160).

⁴⁸Gloucestershire Record Office, D1086, F156.

equivalent as a house was delivered in a way that did not show on his balance sheets as income. Payment in some form for Blagden's services would have been proper, and Cavendish would not have accepted them otherwise. Concerning the other statement, there is evidence that Cavendish encouraged Blagden to practice medicine, which is incompatible with the alleged condition that he give up the practice of medicine unless Cavendish's encouragement implied an end to their relationship.⁴⁹

Blagden's association with a rich aristocrat was grist for rumor mills. The chemist Richard Kirwan wrote to a French colleague that Blagden looked at questions in science only through Cavendish's eyes because Cavendish "is a near relation of the duke of Devonshire and has six thousand pounds yearly income."⁵⁰ Blagden's critics said he was avaricious. According to Henry Brougham, Blagden wished to marry the widow of Lavoisier for her wealth. Jomard, however, described him as liberal with money.⁵¹ "Frugal" better describes Blagden. At the time of his death, his estate was valued at around £50,000,⁵² an amount which had ceased to be a large fortune in the eighteenth century, though with it Blagden could have lived quite comfortably.

In the fall of 1784 Blagden exchanged his lodgings off Great Ormond Street for a rental house across the street from Cavendish's, No. 7 Gower Street, Bedford Square. The following spring he gave notice to his landlord,⁵³ and he moved into another house on the same street on the same side as Cavendish's, No. 19 Gower St., Bedford Square. The move was definitely upscale; the ratable value of his new house was double that of his first, and half the value of Cavendish's. Blagden owned this house and after four years he sold it.⁵⁴ His papers contain two undated, unaddressed draft letters referring to a house, which we have reason to think were written to Cavendish.

Just after you were gone Mr Hanscombe called here with the inclosed note, & opened it; he had [-----] before at your house, but having been informed you were gone by to Hampstead came to shew it to me. I am extremely obliged to you for the liberal offer you have made; but as, were I so rich that the sum would be no object to me I should still think it too much for the house, & shd probably refuse to give it. I cannot but consider it as totally inequitable that you shd give it for me. I therefore do most seriously request that you would refuse to comply with the terms proposed, & wait till an opportunity offers of making a fairer purchase; and in the mean time I will use every means in my power to become reconciled to my present situation.⁵⁵

Blagden refers to Hampstead, where Cavendish had a country house from 1782 to 1785. The other reference is to Thomas Hanscomb, a builder who around this time inquired about

⁴⁹Charles Blagden to Joseph Banks, 8 Apr. 1790, draft, BL Add Mss 33272.

⁵⁰Richard Kirwan to Guyton de Morveau, 9 Jan. 1786, in Guyton de Morveau (1994, 161–164, on 163).

⁵¹Getman (1937, 73).

⁵²Ibid., 74.

⁵³Charles Blagden to Mr. Mountfort, 22 Mar. 1785, draft, Blagden Letterbook, Yale.

⁵⁴In 1786 the rate books list Blagden at both of his addresses on Gower Street; for that year the ratable value of his first house was £32 and of his second house £65; Cavendish's house was valued at £120. Rate Books for Gower Street: Bloomsbury Division (part 1), 11; St. Giles in the Fields Division (part 2), 23, 25. For 1789: St. Giles in the Fields Division (part 2), 31–32. Camden Archives.

⁵⁵Blagden Collection, Royal Society, Misc. Matter – Unclassified.

property on Clapham Common as Cavendish's agent. Among Blagden's papers is a carpenters' bill from Hanscomb & Fothergill for work done on *Blagden's*, house at Clapham in the summer and fall of 1785.⁵⁶ It is conceivable that Blagden considered settling at Clapham, where Cavendish intended to do his experimental work. There are no extant rate books for Clapham, but the less inclusive Clapham land tax records have survived, and they contain no listing for Blagden. Nowhere in Blagden's correspondence or in other papers do we find mention of a house at Clapham. Cavendish had extensive work done on his new house at Clapham Common in the months covered by the carpenters' bill, which was probably incorrectly labeled, intended for Cavendish with Blagden acting for Cavendish. The second draft letter concerns a quarrel between Blagden and Banks, placing it in 1789 or 1790: "The generosity of your conduct in your original offer, in your subsequent present of this house, in your late confirmation of that present, and especially in your further offer when I expected to marry last year, I shall always take a pride in acknowledging."⁵⁷ The mention of the offer to Blagden upon his marriage almost certainly identifies Cavendish as the recipient of this letter. The house that Blagden sold in 1789 was his house on Gower Street, and we believe that it was the "present" referred to in this letter, and that Cavendish was the giver. We know that Cavendish wanted to help Blagden resume his medical practice, a goal which a house would have served more directly than an annuity.

It is thought that Cavendish and Blagden ended their association in 1789. Thomson said that they did not get along and Blagden "left him."⁵⁸ Wilson was able to learn only that their association "did not suit." The timing of their break and almost certainly part of the reason for it had to do with a conflict between Blagden and Banks. Blagden felt that he was exploited by Banks, who used him for his own ends without recompense, while discouraging him from following his profession, medicine. He seriously considered resigning his secretary post in the Royal Society, believing that his accepting it had been the great misfortune of his life. Cavendish was not a cause of his break with Blagden so much as an affected third party, though a break would probably have come in any case. Cavendish's call on Blagden's services had never been onerous, and long before 1789 he had come to the end of most of his major experimental investigations, the one exception coming much later.

Blagden considered living abroad for the winter 1789–90 in part because it might "prevent an open rupture with Sir Jos. Banks." He asked Cavendish if his absence would hold up any work of his that Blagden was unaware of. "Now I trust to the strict principles of <openness> sincerity by which I know you are always guided "that you will fairly tell me" for an open & explicit answer to the question whether you have on your own part any objection to my going."⁵⁹ These are not words of someone who is breaking off a relationship. Cavendish's only concern about Blagden's going was that it might interfere with the pursuit that Blagden had "much more at heart than any object in life," which Cavendish understood to be the practice of medicine.⁶⁰ Blagden went abroad with Henry Temple, Lord Palmerston that fall but the tour had to be abandoned, and Blagden remained in London through the winter. To all outward signs, Cavendish and Blagden's break was amicable, and it was

⁵⁶Hanscomb & Fothergill, "Carpenters Work Done for Dr Blagden at His House at Clapham," Gloucestershire Record Office, D 1086, F153.

⁵⁷Blagden Collection, Royal Society, Misc. Notes, 224.

⁵⁸Thomas Thomson (1830–1831, 1:338).

⁵⁹Blagden to Cavendish, Aug. 1789.

⁶⁰Charles Blagden to Henry Cavendish, Aug. 1789, draft; in Jungnickel and McCormack (1999, 666–667).

not sharp. A year later, in late 1790, Blagden was still acting as Cavendish's associate, writing letters to several colleagues inviting them to Cavendish's house at Clapham Common to witness an experiment on the specific heats of different airs.⁶¹ Some days later, he told Banks that he had been detained from setting out on a journey "at first by an experiment at Clapham."⁶² Blagden continued to accompany Cavendish to meetings of the Royal Society, and he continued to send Cavendish scientific news from abroad. Frequent as their meetings were, they did not have their former closeness. When Cavendish died, Blagden wrote in his diary of an earlier time when he had been "intimate with him."⁶³

Clubs

The setting of Henry Cavendish's social life was clubs. From the Restoration in the seventeenth century through the eighteenth century and beyond, men of science congregated in the coffee houses and taverns of London, often meeting as clubs.⁶⁴ The Royal Society Club, the best known and best documented of Cavendish's clubs, met at the Mitre Coffee House on Fleet Street, and later at the Crown & Anchor on the Strand. In letters to Cavendish from the 1770s, Alexander Dalrymple sent greetings to their mutual friends at the Mitre and at the King's Head. The King's Head Tavern in Chancery Lane was where Robert Hooke and other fellows of the Royal Society gathered in the late seventeenth century, but King's Head was a common name for taverns.⁶⁵ In letters to Cavendish from the 1780s, John Michell greeted their common friends at the Cat & Bagpipes, a popular tavern and chophouse located on Downing Street.⁶⁶ Cavendish went with his father to a club that met in a private house on the Strand, mentioned earlier. His father met with a club at Rawthmell's Coffee House on Henrietta Street, in Covent Garden, and we are almost certain that Henry did too. To settle the time of inspection of government powder magazines, William Watson asked a fellow committeeman Benjamin Franklin to "call in Henrietta Street," as "Mr. Cavendish [chairman of the committee] seldom fails of coming there."⁶⁷ There were other scientific clubs Cavendish did not belong to but his colleagues did. One club, which included Aubert, Nairne, and Kirwan, met at the Chapter Coffee House and later at the Baptist Head Coffee House.⁶⁸ Another club, which included Blagden, Banks, and Maskelyne, met at Jack's Coffee House and later at Young Slaughter's Coffee House on St. Martin's Lane.⁶⁹ Other clubs met at Banks's⁷⁰ and at Kirwan's⁷¹ houses.

⁶¹ As the experiment would take the better part of the day, they were to arrive by 10 AM, and if they arrived by 9 AM they could join Cavendish at breakfast. Charles Blagden to Edward Nairne, 5 Oct. 1790, draft, Blagden Letters, Royal Society 7:457. Charles Blagden to Henry Cavendish, 5 Oct. 1790, draft; in Jungnickel and McCormmach (1999, 679).

⁶² Charles Blagden to Joseph Banks, 17 Oct. 1790, BL Add Mss 33272, 91–92.

⁶³ 1 Mar. 1810, Charles Blagden Diary, Royal Society 5:428(back).

⁶⁴ A.E. Musson and E. Robinson (1969, 58). Bryant Lillywhite (1963, 22–24).

⁶⁵ From the 1730s, there is a record of a meeting that included a number of scientific men at a King's Head. R. Parkinson (1854–1857, vol. 1, pt. 2, 556). Seven King's Head taverns are listed under the signs of taverns in *Vade Mecum*, included in Walter Besant (1902, 639–640).

⁶⁶ Archibald Geikie (1918, 58).

⁶⁷ William Watson to Benjamin Franklin, 31 July 1772, in Wilcox (1969/1974, 213).

⁶⁸ G.I'E. Turner (1967, 220).

⁶⁹ Henry B. Wheatley (1891, 2:484). Lillywhite (1963, 404).

⁷⁰ John Strange to Joseph Banks, 8 Aug. 1788, Banks Correspondence, Royal Botanic Gardens, Kew, I.315.

⁷¹ Musson and Robinson (1969, 123).

Named after the day of the week it met, the Monday Club met at the George & Vulture, a coffee house located in George Yard, off Lombard Street.⁷² This club had been meeting since at least the 1760s,⁷³ and Cavendish came to it regularly for fifteen years or more. When John Pringle returned from Edinburgh to London in 1781, he rejoined the Monday Club, where he met with “such friends as Mr. Cavendish, Dr. Heberden, and Dr. Watson.”⁷⁴ Blagden began coming to it soon after he returned to London, as we know from his diary.⁷⁵ Aubert, Dalrymple, Franklin, Phipps, Nairne, and Smeaton were members.⁷⁶ The discussions at this club were often continuations of those at the Royal Society and the Royal Society Club.⁷⁷ Blagden’s diary shows that he and Cavendish frequently went together to dine at the Monday Club; upon returning home from there one night, Blagden noted: “went with him [Cavendish] to Club: I spoke of spirit & independence, & true friends.”⁷⁸

Colleagues



Figure 12.1: Sir Charles Blagden. Etching from the portrait by Thomas Phillips. Secretary of the Royal Society and Cavendish’s associate in the 1780s.

⁷²Lillywhite (1963, 160, 201, 699, 792).

⁷³Verner W. Crane (1966, 213).

⁷⁴Quotation from the *Annual Register*, 1783, 45; in James Sime (1900, 50).

⁷⁵1 Jan. 1782, Charles Blagden Diary, Royal Society, 1.

⁷⁶On Franklin and Aubert: Crane (1966, 213). On Dalrymple: 15 June 1795, Charles Blagden Diary, Royal Society 3:62 and elsewhere. On Phipps, Nairne, and Smeaton: Alexander Aubert to Joseph Banks, 1 July 1789, BL Add Mss 33978, no. 251.

⁷⁷Alexander Aubert to William Herschel, 7 Sep. 1782, Herschel Mss, Royal Astronomical Society, W 1/13, A 10. Aubert to Banks, 1 July 1789.

⁷⁸25 Aug. 1794, Charles Blagden Diary, Royal Society 3:13.



Figure 12.2: Alexander Dalrymple. Engraving by Rudley from a drawing by John Brown. Frontispiece to *European Magazine* 42 (November 1802).



Figure 12.3: Engraving by J. Chapman, painting by S. Drummond. Wikipedia.



Figure 12.4: Engraving by J. Mitan from the portrait by G. Slous. Wikimedia Commons.

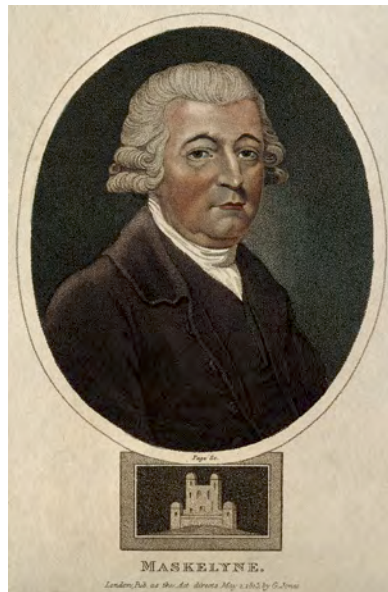


Figure 12.5: Nevil Maskelyne. Coloured stipple engraving by R. Page, 1815. Wellcome Library, London.



Figure 12.6: Sir William Herschel. Painting by Lemuel Francis Abbott, 1785. Wikimedia Commons.

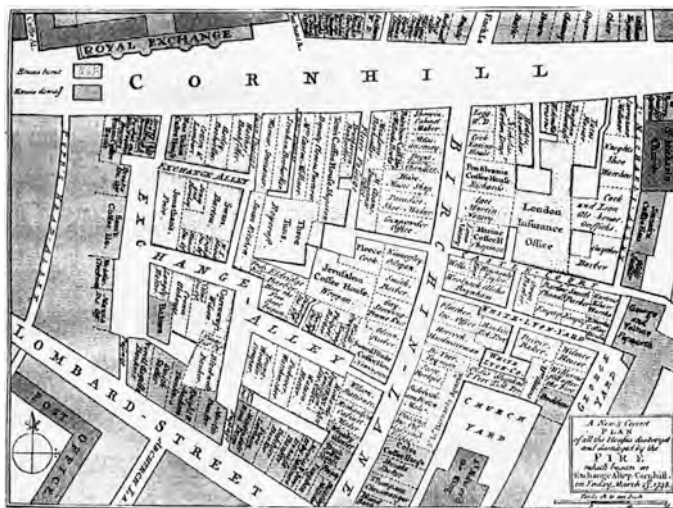


Figure 12.7: Map of Cornhill. The map shows the buildings damaged or destroyed by a fire originating in Exchange Alley in 1748. A good number of coffee shops relocated but not the George & Vulture off George Yard, shown at the upper right corner of the map. Cavendish met his colleagues there on Monday evenings. Aytoun Ellis (1956, 94).