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Faraday's "blue" plaque – commemorating a remarkable master as well as a remarkable servant (third paragraph beginning "Michael Faraday's father" revised 10 August 2015 to take account of baptismal evidence in reference 8a)

"Memorial tablets" (the predecessors of "blue plaques") were first proposed by William Ewart, MP in 1863. The proposal was taken up by the Society of Arts [1] [2], which erected 35 plaques between 1867 and 1901 [3]. (The scheme passed to the London County Council in 1901 and is now with English Heritage.) Of the 35 plaques, one erected in 1875-6 [4] can still be seen at N° 48 Blandford Street in the Marylebone area of London. The plaque (Figure 1) states that Michael Faraday (1791-1867), Man of Science, was an apprentice there. Other plaques erected in 1875-6 along with Faraday's, or earlier, included those honouring Samuel Johnson, David Garrick, Horatio Nelson, Benjamin Franklin, Sir Joshua Reynolds, and Napoleon III.



Figure 1: the plaque on 3 January 2013.

The plaque is a red-brown colour – not blue! – with white lettering. Close inspection of the "pattern border" reveals in its upper half the words "ERECTED BY THE", and in its lower half the words "SOCIETY OF ARTS".

The story of how Faraday's apprenticeship as a bookbinder in Blandford Street led to his being taken on by Sir Humphry Davy at the Royal Institution in 1813 is a romantic one [5]-[8a].

Michael Faraday's father, James, was a blacksmith in Outhgill in Westmorland. (Outhgill, OS square NY 78 01, now in Cumbria, still has a "Faraday Cottage".) On 11 June 1786, he married Margaret Hastwell, a sister of the wife of an older brother Richard. Shortly thereafter, the couple moved to Newington Butts in London presumably seeking better prospects. Their children were Elizabeth (born 26 May 1787), Robert (8 October 1788), Michael (22 September 1791), and Margaret (17 November 1802). By 1796, the family was living in Jacob's Well Mews in Marylebone. It was while there that Michael received rudimentary schooling, and from there, on 7 October

1805, that he was taken on as an apprentice bookbinder by George Riebau of N° 2 Blandford Street, a few streets away (Figure 2). Despite the proximity of Riebau's shop to the parental home, the norm would have been for Faraday to take up residence with his master.

Any lingering doubt that the modern N° 48 was formerly Riebau's shop at N° 2 is dispelled by the close resemblance between a contemporary drawing (Figure 3), and a modern photograph (Figure 4). The irregular spacing of the first-floor windows distinguishes the house from other houses nearby.

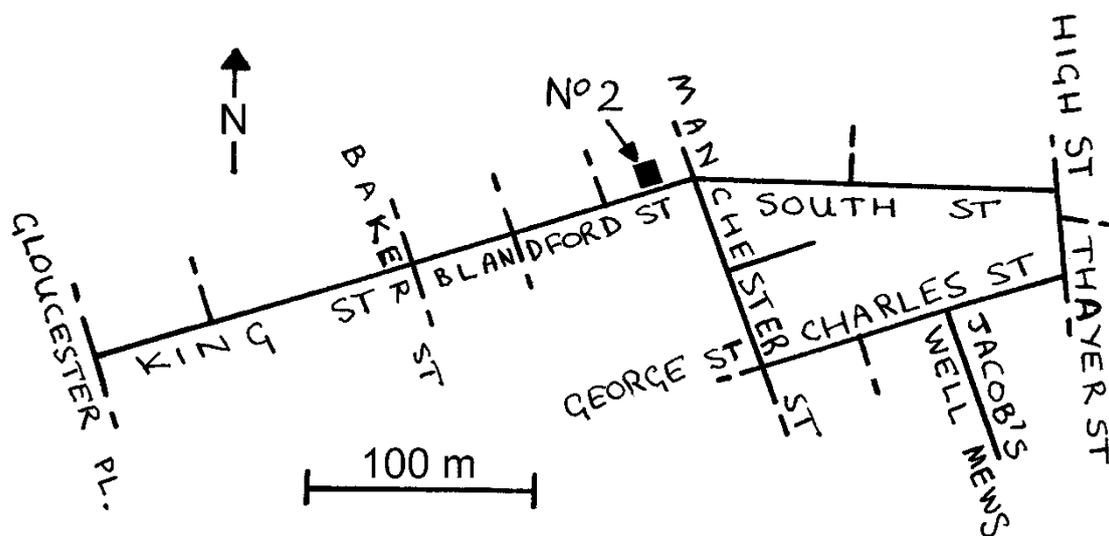


Figure 2: modern street plan with *former* street names according to ref. [9]. King St, Blandford St, and South St are now all called Blandford St, numbered east-west. Riebau's shop was N° 2 Blandford St, OS reference TQ 281(6) 815(5) by GPS near the front door, and is now numbered 48. High St is now called *Marylebone High St*. George St and Charles St are now both called George St. The other street names are unchanged. Portman Square is three blocks south-south-east of King St.



Figure 3: Riebau's bookshop [10]. "N° 2" appears above "RIEBAU", and "Blandford St" below.



Figure 4: N° 48 Blandford St on 20 December 2012. The house comprises two shops (the Doorsteps sandwich bar and Faradays Property Consultants) and two apartments, and has three front entrance doors.

Riebau recognised Faraday's talent and generously facilitated Faraday's intellectual development. At the same time, Faraday's training as a bookbinder developed his skill with his hands. Without Riebau, science would almost certainly have been deprived of one of its greatest thinkers and experimentalists.

Riebau encouraged Faraday to read scientific books that passed through the shop, including Lavoisier's *Elements of chemistry*, Jane Marcet's *Conversations on chemistry*, and Thomas Thomson's four-volume *System of chemistry*. For electricity, Faraday used the *Encyclopaedia Britannica* article

by James Tytler and *The dictionary of arts and sciences*. In early 1810, Faraday began to attend the lectures of Mr Richard Tatum at 53 Dorset Street off Fleet Street [2, L30], not to be confused with the Dorset Street in Marylebone. Faraday also attended meetings of the City Philosophical Society which Tatum had established (in the 1820s, the CPS was to be informally absorbed by the Society of Arts [2]). Faraday received tuition to improve his writing from Edward Magrath of the Society. He attended Sir Humphry Davy's lectures at the Royal Institution in Albemarle Street on 29 February, 14 March, 8 April, and 10 April 1812. Faraday made visits to bridges and waterworks to improve his general knowledge of civic and industrial installations. Riebau's encouragement extended to allowing Faraday to use a back room as a laboratory outside working hours.

The earliest of Faraday's amateur experimental work for which there is evidence was the construction of a working electrostatic generator [11]. This was made by Faraday with money and materials from Riebau, his father, and his brother, which dates the commencement of the project before the death of Faraday's father on 30 October 1810. Unfortunately, the original papers used by the author of ref. [11], those of "the late Sir James South", are now lost [12]. South had somehow acquired the machine itself, and had shown it to Faraday in his later years, who had been "much affected at the sight of the favourite of his boyhood". Unlike South's papers, the machine survives (and is on display at the Royal Institution). In the course of making the machine, Faraday had dissolved sealing wax in an unspecified solvent and then used the solution to coat the two corks which closed the ends of a large glass cylinder and allowed it to be fixed onto the machine's rotating axis. Faraday later said that his dissolution and precipitation of the wax was his "first chemical experiment".

Evidence of Faraday's later amateur experimental work comes from a remarkable correspondence between Faraday, then in the last three months of his 7-year apprenticeship, and Benjamin Abbott. Abbott was a city clerk of good education whom Faraday had met through the City Philosophical Society and who lived in Long Lane, Bermondsey. Between 12 July and 1 October 1812, Faraday dealt at length with scientific matters in ten letters to Abbott [L3-5, L7-13], and received a comparable number of (now-lost) letters from Abbott. As well as engaging in theoretical discussion, Faraday describes his construction of two voltaic piles and his electrolysis of aqueous solutions, moreover in a style that gives the reader confidence in the accuracy of his observations. Abbott was doing his own experiments, and one assumes that their amateur efforts had been going on for some time (compare [L30]). The principal reason for the correspondence – the two men met frequently – was set out in Faraday's first letter begun on the afternoon of Sunday 12 July 2012 [L3]. Faraday justified communication by "Epistolations" (his own neologism) as "improving the mind of the person who writes, & the person who receives". Faraday sought among other things to improve his "Grammar &c" and his ability to express himself. He noted that ideas "generated and formed in the head" became "clear and distinct" in writing.

But on 7 October 1812, Faraday's apprenticeship with Riebau ceased, and he took up a journeyman position with Henry de la Roche, of "King Street, Portman Square". At this period, before postal districts, it was normal to

locate minor streets by reference to a nearby major street or square, which allows identification of King Street with that in Marylebone, *ie* the westernmost section of the modern Blandford Street (Figure 2). The work load was high, and Faraday had presumably lost the part-time laboratory in Riebau's back room. In consequence, the correspondence became one-sided for the next five months, with Abbott writing numerous letters to Faraday but Faraday writing only two to Abbott, neither specifically discussing science [L14, L16]. Faraday wrote to another City Philosophical Society friend, T Huxtable, "I must resign philosophy entirely to those who are more fortunate in the possession of time and means..... I am at present in very low spirits" [L15]. Faraday later recalled having thought that "trade" was "vicious and selfish" and having imagined that "the service of Science ... made its pursuers amiable and liberal" [L419].

Ironically, Faraday's escape from the bookbinding trade was assisted by his skill in that very trade. Faraday had presented to Riebau bound volumes of his notes of Tatum's lectures. Through Riebau, these were seen by a Mr Dance who lived in adjacent Manchester Street (Figure 2) at N^o 17. It was Dance [13], a member of the Royal Institution, who gave Faraday his tickets to Davy's lectures in early 1812. With the encouragement or recommendation of Dance and/or Riebau, Faraday may have procured a meeting with Davy in early October 1812. At any rate, Faraday was sufficiently known to Davy that when the latter injured his eye in late October 1812 (a nitrogen trichloride explosion), he chose Faraday to serve as an amanuensis while he recovered. (Presumably Faraday did this outside his working hours for de la Roche.) And at some time during the last four months of 1812, Davy saw Faraday's bound volume of the notes he had taken of his own, *Davy's*, lectures. Davy had in May 1812 resigned from paid employment with the Royal Institution but was still an honorary professor. In a letter to Faraday of 24 December 1812 [L17], Davy warmly promised to do what he could for him: "It would gratify me to be of any service to you. I wish it may be in my power." Faraday was an obvious choice should any junior post become available at the RI.

On 19 February 1813, such a post did become available when the laboratory assistant at the Royal Institution, William Payne, attacked the Institution's instrument maker, John Newman, and was sacked. On 22 February 1813, Davy sent a note to Faraday inviting him to a job interview. On 1 March 1813, Faraday was appointed Payne's replacement by the Institution's managers with rooms in Albemarle Street.

On 8 March 1813, from his new situation, Faraday resumed writing to the tolerant Abbott, "in the expectation of a recommenced & reinvigorated correspondence" [L18] [14]. In this letter, he reverted to scientific matters, namely the work he had done for Davy on the extraction of sugar from beetroot and the preparation of carbon disulfide. Now a full-time worker in a properly equipped laboratory, Faraday's talents, already so evident during his apprenticeship with Riebau, could begin to develop fully.

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Notes and references

1. The Society of Arts was established in 1754 and became the Royal Society of Arts (RSA) in 1908. Its full name is The (Royal) Society for the Encouragement of Arts, Manufactures and Commerce. The RSA today is focused particularly on social and economic innovation, and despite its strong support of industrial design is less directly concerned with science and technology than in the nineteenth century. Faraday was chairman of its Chemical Committee for most of the period from 1826 to 1838 [2].
2. Frank A J L James, *RSA Journal*, February 1992, **140** (No 5426), 192-199, "Michael Faraday, the City Philosophical Society, and the Society of Arts".
3. English Heritage, *History of the blue plaques scheme*, <http://www.english-heritage.org.uk/discover/blue-plaques/about/history> (accessed 20 March 2013).
4. "Annual general meeting – report", *Journal of the Society of Arts*, June 1876, **24** (No 1232), 787-792.
5. L Pearce Williams, *Michael Faraday – a biography* (Chapman & Hall, London, 1965; Da Capo paperback reprint, New York, 1987), 8-29 (Da Capo edition).
6. Frank A J L James (ed.), *The correspondence of Michael Faraday, Volume 1, 1811 – December 1831, Letters 1-524* (Institution of Electrical Engineers, London, 1991), xxvii-xxxii.
7. Peter Day (ed.), *The philosopher's tree* (IOP Publishing, Bristol, 1999), 1-18.
8. James Hamilton, *Faraday – the life* (Harper Collins, London, 2002), 5-16 and 27- 43.
- 8a. Frank A J L James, *Michael Faraday – a very short introduction* (Oxford University Press, Oxford, 2010), Chapters 1 and 2. Baptismal evidence at page 9 disproves the previous account in [5], [6], [8], and elsewhere that James and Margaret moved to London in 1791 with their oldest two children and with Margaret pregnant with Michael. The third paragraph of this paper adopts the revisionist account.
9. Benjamin Rees Davies, *London. 1852. Drawn & engraved expressly for the Post Office directory* (British Museum Crace collection, viewable under www.bl.uk/onlinegallery/onlineex/crace/l/007000000000007u00269000.html, accessed 20 March 2013).
10. Henry Bence-Jones, *The life and letters of Faraday* (2 volumes, 1st and 2nd editions, London 1870), 9 (either edition).
11. John Hall Gladstone, *The Argonaut*, 1875, **2**, 33-35, "Faraday's first electrical machine".

12. James (ed.), footnote 1 to Letter 2.
13. There is disagreement as to *which* Mr Dance of 17 Manchester St.
14. The last letter from Faraday to Abbott in James (ed.) is Letter 247 of 16 December 1824.

“L” references in the text indicate the number given to a letter in James (ed.).

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