

Notes and Records

OF THE ROYAL SOCIETY OF LONDON



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PRIESTLEY IN LONDON

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[Plates 1 and 2]

JOSEPH PRIESTLEY was more a visitor to London than a resident, though he spent three troubled years in Hackney after the riots of 1791 had destroyed his house, laboratory and chapels in Birmingham. Nevertheless, his annual visits from 1766 to the Royal Society, to clubs and coffee houses, to Unitarian chapels and the homes of his many friends in London provided much of the stimulus for his scientific, religious and political thought. Although there are now only a few visible reminders of his visits to London, it is still possible to trace some of the places at which he stayed or preached, and it is the aim of this paper to identify these and to provide a brief picture of Priestley's London life. There seems to have been only one previous publication related to this topic, a note (1) which deals more with the London life of his associates than of Priestley himself. This account is prefaced by a short summary of his life; there are a number of biographies of Priestley (2).

BRIEF HISTORY

Joseph Priestley was born on 13 March (O.S.) 1733 at Fieldhead, a village some six miles from Leeds. His mother died in 1740 and he was brought up by his Calvinist aunt in Heckmondwike, Yorkshire 'with sentiments of piety but without bigotry' (3a).

After a thorough education he trained for the Presbyterian Ministry in 1752 at the Dissenting Academy at Warrington. At this time, when English universities were then open only to those of the Anglican faith, he became assistant minister at Needham Market, Suffolk. He was an insecure and in doctrinal disagreement with much of the Anglican establishment. He then moved to a ministry at Nantwich, Cheshire in 1758, and here he earned enough to buy equipment to practise his growing interest in electricity. In 1761 he went to the Dissenting Academy at Warrington and a year later married the eighteen year-old Mary Wilkinson. At about this time he met Matthew Turner, a Liverpool physician from whom he learned some practical chemistry. In 1764 he received an honorary doctorate in law from Edinburgh University.

His developing interest in electricity lead him to start writing a treatise of

the subject, and at the end of 1765 he obtained a letter of introduction to John Canton, F.R.S. The crucial visit to London which followed this is described below.

On his return to Warrington in February 1766 he carried out much practical work on electricity and his treatise was published in 1767 (4). The second edition contained material on *mephitic air*—air unfit for respiration—and after he took up the ministry at Mill Hill Chapel, Leeds in September 1767 he worked on *fixed air* (carbon dioxide) and other gases. His liberal, dissenting views on theological matters became more decisively Unitarian—the undogmatic creed of the simple humanity of Christ, rejection of the concept of the Trinity and belief in the supremacy of God: ‘We all have *one God and Father*, whose affection for us is intense, impartial and everlasting’ (5).

In June 1773 he became ‘literary companion’ to Lord Shelburne, spending most of his winter months in London and the rest of the time on Shelburne’s Bowood estate at Calne, Wiltshire. In 1780, he left Shelburne and went to live at Fair Hill, Birmingham, and on 31 December he became minister at the New Meeting chapel there. He became increasingly prominent in religious and political controversy, espousing the causes of American independence and the abolition of slavery, urging the repeal of discriminatory legislation and later supporting the revolutionaries in France. On 14 July 1791, on the occasion of a dinner being held to celebrate the second anniversary of the storming of the Bastille, a mob gathered and, believing incorrectly that Priestley was at the dinner, destroyed his house, laboratory and chapels in the notorious Birmingham Riots (6).

He had to flee the city and eventually took refuge in London. After his rather unhappy stay there, he went at the age of 61 with his wife to join his children in Northumberland, Pennsylvania. An account of his life in America has been given in this journal (7). He declined the offer of a chair of chemistry at the University of Pennsylvania (8), and died in Northumberland on 6 February 1804.

FIRST VISITS TO LONDON, 1755 AND 1758

Priestley’s first visit was apparently made from Needham Market in 1755 or 1756 to attend a course of treatment by a Mr Angier for a speech impediment. The course cost his aunt £20 and was unsuccessful:

I attended him about a month, taking an oath not to reveal his method, and I received some temporary benefit, but soon relapsed again, and spoke worse than ever. (3b)

Nevertheless, the visit was important because he met, amongst others, Andrew Kippis (9) who became a lifelong friend and benefactor. He passed through London *en route* from Needham to Nantwich in 1758, the crossing being cheaper in those days when made by sea to London and thence by coach to the West (3c).

PRIESTLEY AND THE ROYAL SOCIETY, 1766-73

On 18 December 1765, John Seddon, Rector of the Warrington Academy wrote a letter of introduction for Priestley to John Canton, F.R.S. (10):

You will find him (Priestley) a benevolent, sensible man, with a considerable degree of Learning . . . P.S: If Dr Franklin be in Town, I believe Dr Priestley will be glad to be made known to him. (11)

Priestley took this letter with him to London and stayed over Christmas with Canton. He was taken to a meeting of the Royal Society (12) on 9 January 1766. Here, amongst others, he met Benjamin Franklin (13) and the physicist William Watson, F.R.S. who then lived at Lincoln's Inn; both greatly stimulated his interest in electricity. He also met Richard Price (14), later to become his closest friend. The visit and these meetings were of seminal importance to Priestley: London, as the intellectual, scientific and cultural centre of the country provided new sources of inspiration and learning. He resolved to finish his *History of Electricity* and did so that year [it was published (4) in 1767] and to continue experiments of his own. On his return to Warrington in February 1766 he wrote to Canton: 'The time I had the happiness to spend in your company appears in review like a pleasing dream. . . . I ardently wish a repetition of it'.

The same letter mentions that he was carrying out experiments on electrical conduction and—a recurrent theme in later publications—on *mephitic air*. He continues: 'My friends here imagine it would be a great advantage to the publication [of the *History*] if I were fellow of the Royal Society, and have persuaded me to be a candidate for that honour' (15).

Indeed, he was elected to the Society on 12 June 1766, Canton, Franklin, Price and Watson being amongst his sponsors (16). The correspondence between Priestley and Mr da Costa of the Royal Society makes interesting reading (17). He returned to London briefly in August 1766.

After this very successful debut Priestley made it his practice to spend at least one month per year in London, a habit which continued with few interruptions to 1791, though during his time with Lord Shelburne he spent longer periods in the city. From the list of papers read to the Royal Society and

his London letters—only three of the latter during this period—it is clear that his interests in London were at that time concerned very much with the Society (18, 19).

His scientific interests during this period changed in emphasis from electricity to chemistry. His first purely chemical publication (20) derived from an observation made in Leeds while living near a brewery, that *fixed air* (carbon dioxide) could be used to rejuvenate flat beer, and that an artificial 'Pyrmont water' (mineral water) could be made from its aqueous solution. In the early spring of 1772 he dined in London with the Duke of Northumberland who mentioned that the Navy was to use distilled water for drinking purposes on its ships. Priestley thought that his 'Pyrmont water' would be more palatable (it was also thought, erroneously, that it would combat scurvy) and the next day improvised an apparatus 'in his lodgings' (21a) to make it. He gave some to another of his patrons, Sir George Savile, a Whig Member of Parliament for Yorkshire. The water was used on two of Captain Cook's vessels; Priestley thought the invention to be one of his happiest. A little earlier than this incident, in 1771, he had been asked to sail with Cook on his second Pacific voyage, as Naval Astronomer; he accepted, but the invitation was later withdrawn, probably because Anglicans on the Navy board objected to his dissenting views.

He read to the Royal Society his paper 'Observations on Different Kinds of Air', in which his work on *fixed air* (carbon dioxide), *inflammable air* (hydrogen), *nitrous air* (nitric oxide) and *red nitrous vapour* (nitrogen dioxide) was described. His discovery of *inflammable* or *dephlogisticated nitrous air* (nitrous oxide) and of *acid air*, later to be called *marine acid air* (hydrogen chloride) was announced later in the year. All this was published in 1773 (22) and later appeared, with additions, in a series of volumes (21) together with his work on photosynthesis and on the preparation of carbon monoxide (never recognized by him as a separate gas) (21, 23). For these remarkable achievements Priestley was awarded the Copley Medal of the Society, its highest honour, on 30 November 1773 (24).

Where did Priestley stay on these visits, and how did he spend his time in London? We have already mentioned his lodging in London (21a) but since his financial position was poor during this period he had sometimes to stay with friends. In 1769 he wrote to Canton:

I shall be at a loss for a lodging in London. Could you be thinking of a place for me? I intend to take the liberty to be Dr Kippis's guest for a night or two, till I can dispose of myself. (25)

Kippis, Canton and Franklin lived conveniently close to the Royal Society; of

Franklin he said: 'I was seldom many days without seeing him' (3d).

Other good friends in London were Josiah Wedgwood who often stayed in the capital, and his partner Thomas Bentley (see Appendix); both Priestley knew from his Warrington days. It is likely too that he saw much of Joseph Johnson (26) his publisher and literary agent, whose house was near St Paul's, and he corresponded with Henry Cavendish, but the latter was perhaps too much of a recluse to have had much social life with Priestley.

We can trace with more certainty the clubs and societies to which he belonged; the club was an essential part of the intellectual and social life of the eighteenth century, and Priestley belonged to a number of these. For this early period in his London life the 'Club of Honest Whigs', as Franklin called it, was probably the most congenial to him. It met on alternate Thursdays at the London Coffee House in St Paul's Churchyard close to Joseph Johnson's house. Amongst the members of this circle were Priestley, Price, Kippis, Canton and Sir John Pringle (Pringle, who lived in Pall Mall, was a Copley medallist and President of the Royal Society from 1772-1778). Boswell met Priestley here in 1769; of the Club he wrote:

. . . It consists of clergymen, physicians and some other professions . . . (including) Mr Price who writes on morals . . . we have wine and punch upon the table. Some of us smoke a pipe, conversation goes on pretty formally, sometimes sensibly and sometimes furiously: At nine there is a sideboard with Welsh rabbits and apple-puffs, porter and beer. Our reckoning is about 18d a head. (27)

This description would apply to the St Paul's Churchyard premises; in 1771 the London Coffee House (and the Club) moved to 24 Ludgate Hill (28), where they met in a room adjacent to the bar though partitioned off from it (29). He also went to the Slaughter Club which met at Old Slaughter's Coffee House, St Martin's Lane (28); other members included Wedgwood, Captain Cook, and Joseph Banks (30).

A picture of Priestley in these years is provided by Lucy Aiken, who knew him in 1769. In 1831 she wrote in her *Memoirs*:

I have a vivid memory of Priestley, the friend of my father . . . In his manner he had all the calmness and simplicity of a true philosopher. He was cheerful, even playful, and I still see the benignant smile with which he greeted us little ones. [quoted in (31)]

THE SHELburnE YEARS, 1773-1780: ANNUAL VISITS, 1780-1791

In 1772 Price secured an introduction for Priestley to Lord Shelburne (22),

as a result of which he became Shelburne's 'literary companion'—in effect librarian and tutor to his employer's two young children. Most of the time he lived on the Shelburne estate at his own house (No. 19, The Green) in Calne, Wiltshire with his family, but some of the winter months were spent in London, apparently without his family (33). He wrote many letters from London and read a number of papers to the Royal Society, especially from 1773–1776 (17–19). During 1773 he discovered *alkaline air* (ammonia) and studied Scheele's *fluor acid air* (silicon tetrafluoride) (21–23). His most celebrated work was with *dephlogisticated air* (oxygen). He discovered this at Calne, probably on the Bowood estate (23, 35) on 1 August 1774, by heating mercuric oxide with the aid of a burning glass. Although it is sometimes said that this experiment was carried out in London (1) it is quite clear from his own writings that the discovery was made at Calne and communicated to Sir John Pringle on 15 March 1775 (34). The confusion arises (35) from a letter of 1 April 1775 to Price in which Priestley speaks of: '... the pure Air I discovered in London . . .' (36).

By this Priestley apparently meant that it was in London, early in 1775, that he had first distinguished between oxygen and nitrous oxide (35): in fact, of course he never realized the full significance of his work at all. The tangled question of the primacy of the 'discovery' of oxygen is discussed in a number of papers (37); Priestley's own gentle note on this matter (37) is of interest, as is the fact that he undoubtedly made oxygen by heating potassium nitrate before 1772 (19, 21b, 23).

From 24 August 1774 to 2 November 1774 Priestley accompanied Shelburne on a trip to Flanders, Holland, Germany and France (where, in Paris, he met Lavoisier and other chemists). He discovered *vitriolic acid air* (sulphur dioxide) on 26 November 1774 (21) quite possibly in London, though we know from his letters that he was back in Calne by 16 December.

Not long after this Priestley sustained an unpleasant attack on his reputation from Bryan Higgins (38), who taught chemistry and sold chemical equipment from premises in Greek Street, Soho. Priestley met Higgins on 6 February, attended two of his lectures and bought some equipment from him. On 23 May Priestley demonstrated some experiments at Shelburne House to, amongst others, Dr Brocklesby (a friend of Higgins) and William Watson; Higgins later charged him with plagiarism and seeking to mystify his audience. Priestley's rebuttal is set out in a lengthy pamphlet which includes correspondence between him and Higgins (39). It is possible that Higgins's animosity was prompted, at least in part, by political and philosophical differences rather than purely scientific disagreement.

In this period Priestley stayed during his London visits at Shelburne House (Appendix) as he says in his *Memoirs* (3e, 3f; 35); his letters to Higgins (39) also bear this address. He often conducted experiments there, at Shelburne's request:

[Shelburne] encouraged me in the prosecution of my scientific enquiries and allowed me £40 per annum for expenses of that kind, and was pleased to see me make experiments to entertain his guests, and especially for foreigners. (3g)

He may have stayed with friends on various occasions. As time went on the Reverend Theophilus Lindsey (40), whom he had known from his Warrington days, became a much closer friend:

Mr Lindsey . . . went to London . . . where he lived in two rooms of a ground floor until . . . he was able to pay for the use of the upper apartments. . . . In this humble situation I passed some of the most pleasing hours of my life where, in consequence of living with Lord Shelburne, I spent my winters in London. (3f)

This would refer to Lindsey's first lodgings at Featherstone Buildings to the west of Chancery Lane; Priestley would also have visited Lindsey from 1778 in Essex Street (indeed he took refuge there on his flight to London in 1791) and he often attended and sometimes officiated at services at Essex Street Chapel from 1778 (3d). He certainly stayed with Joseph Johnson who held weekly dinner parties in the house above his shop at 72 St Paul's Churchyard; guests in later years included Tom Paine, Mary Wollstoncraft and William Blake. In 1783 he sat there for his portrait by Fuseli (31) and two letters to Sir Joseph Banks bear this address (41). He also met Samuel Johnson, and knew Boswell from the Club of the Honest Whigs.

Although his good friend Franklin finally left England on 25 March 1775, it is likely that Priestley continued to attend the Club of Honest Whigs and the Slaughter Club. After his award of the Copley Medal in 1773 he joined the Royal Society Dining Club which met until 1780 at the Mitre Tavern, Fleet Street, and thereafter at the Crown and Anchor in the Strand (42). He also joined the Smeatonian Club (42). Its founder was the engineer and surveyor John Smeaton, who had made him an air-pump. He was an honorary member, probably in 1783, of a club which met at the Chapter Coffee House 'held at Mr Walker's lecture room' (28, 43). Other members of this included Kirwan, Wedgwood, the instrument-maker Edward Nairne (44) and Matthew Boulton, F.R.S., an engineer and later partner of James Watt. Priestley would almost certainly have been a guest of Sir Joseph Banks, who lived in Soho Square (30).

The receptions and dinners held there were famous, though Banks's High Tory politics must have been distasteful to Priestley.

In 1779 Priestley heard that Shelburne was considering transferring him to one of his Irish estates. With a sure sense of history, he took this as a hint that their association was about to end—it is possible that his theological views had become too radical for his patron. He was in London in January 1780 (18); his last letter from Calne was in March and after a short spell in London in August, he obtained an appointment as a minister in Birmingham. Here he was very happy; although he continued to make visits to London (18) they were less frequent. Domestic demands were strong (his fourth child, named Henry at Shelburne's request, was born in 1777 at Calne) and he must have missed his family in the London winters:

[my wife is] of excellent understanding, of great fortitude of mind . . . of a temper in the highest degree affectionate and generous . . . greatly excelling in everything relating to household affairs, she entirely relieved me of all concern of that nature . . . (3h)

There were also economic reasons for staying away from London—although Shelburne paid him an annual pension of £150 to the end of his life he again became dependent on other patrons—and the attractions of the Lunar Society (6) in Birmingham were strong.

During this period Priestley, who had never made any secret of his unorthodox political and religious views, became much involved in dispute. His efforts and those of his friends to obtain repeal of the Corporation and Test Acts, which debarred dissenters from holding official positions brought him into conflict with Pitt, and attacks were made on him from many quarters including one from his erstwhile friend Edmund Burke in the House of Commons.

From 1786 Priestley's London interests began to centre on the neighbourhood of Hackney. In 1786, the dissenting academy of New College (see Appendix) had been founded; Price and Kippis became tutors there when it moved to Hackney in 1787 and Thomas Belsham, another friend and Unitarian minister who took up residence at New College in 1789. Price had long been a minister at the Gravel Pit Meeting (see Appendix) in Hackney, and Priestley often preached there; in 1787 Price moved house to Hackney. On 11 April Priestley went to London to preach at the Gravel Pit and also to deliver an anniversary discourse at New College. Price died, however, on 19 April, and Priestley was one of the six pall-bearers who bore his coffin to Bunhill Fields a week later. On 27 April he gave his New College address 'The

Proper Object of Education in the Present State of the World', a stirring call for the civil rights of man.

He returned to Birmingham early in May, but on 14 July his house, laboratory and chapels were destroyed during the Birmingham Riots (6; see also 456) and it was clear that his life might be in danger. He and his wife took refuge with friends, and on Saturday 16 July he:

set off on horseback, with a servant, for Worcester, intending to catch the London mail that evening. But the fugitives lost their way . . . and wandered about all night. They reached Kidderminster safely in the morning. . . . He [Priestley] left in a coat buttoned up to his chin, a wig and cocked hat with the point in front, his usual dress out of doors. He travelled all night, reaching London between six and seven in the morning of Monday July 18, and went to his friend Lindsey's in Essex Street Strand [John Rylands, quoted in (31); the same source contains a vivid recollection of Priestley at the time of the riots by Martha Russell].

He stayed for a few days with Lindsey and dined with Sheridan and Fox, but in London too, life was dangerous for him (it is said by one of his biographers that he could appear in the streets only in disguise) (45a). We can trace his movements from the sources of the many letters he wrote during this period (18); during most of August he was in Tottenham with a 'Mr Salte' (probably Samuel Salte, a banker friend from earlier years); a letter from Missenden on 30 August is probably from William Vaughan's house; in one from 'Wycombe' of 29 September he announces his intention to go to London the next day. Some letters from 'London' appear in October and November, after which 'Clapton' appears on all his letters.

By Sunday 9 October, he was back at the Essex Street chapel and gave a sermon there; Lindsey wrote:

He is very well, and with his wonted cheerfulness which never fails him. Sunday last he preached for me for the first time since he has been expelled by fire and destruction out of his own place of worship. . . . (46).

RESIDENCE IN LONDON, 1791-1794

Although his Birmingham congregation beseeched him to return to them it was the unanimous views of his London friends that this would be disastrous, and with reluctance he decided to settle in London. He found a landlord willing to lease him a house in Clapton, just north of Hackney, conveniently placed for the Gravel Pit Meeting and for the New College, Hackney. A

remarkable recent piece of research has identified the likely site of his house (47). He began to construct a laboratory and library with financial help provided by Wedgwood and others, though it is said that he found it difficult to obtain servants and that shopkeepers shunned him (45a). Nevertheless, the congregation of the Gravel Pit Meeting welcomed him and formally asked him on 7 November 1791 to be their minister. This he accepted, and preached there most Sundays; he also lectured on a wide variety of subjects including chemistry at New College. At this time the Hackney College was the only place in the capital where chemistry was taught by anyone of Priestley's calibre. He met with a number of friends at a 'Club' in Hackney possibly associated with New College (48). Although he saw less of his Royal Society friends he never resigned from the Society (49), but was sometimes critical of its selection procedures (41).

However, his liberty was increasingly in danger. He was burned in effigy along with Tom Paine several times, and received many threatening and insulting letters. The Rector of Lincoln College, Oxford (of whom it was said 'There is much . . . rough, unpolished strength in his language') wrote:

Long have you been the Danger of this country, the Bane of its Polity and Canker-worm of its Happiness. (45a)

The situation was not helped by Robespierre's announcement in September 1792 that Priestley, Tom Paine, William Wilberforce, George Washington and Jeremy Bentham were honorary citizens of France and that Priestley had been elected *in absentia* a member of the National Convention in France (he had not visited France since 1774). Meanwhile, as the French situation became worse the fears of conspiracy and overthrow of the established order in England grew, and Priestley—while in no way condoning the excesses in France—was even more bitterly attacked. A caricature of 1792 (plate 2) depicts his son, William, who had applied for French citizenship in that year, as a puppet in the French National Assembly. Note the jar of phlogiston from Hackney in the foreground (50).

In late August 1793 his sons Joseph and Henry sailed for America. Priestley waited to receive part of the £3098 that he was finally to be paid for compensation for damages sustained during the Birmingham Riots and then decided to follow them with his wife. He gave his farewell sermon on 30 March 1794 at the Gravel Pit and spent his last days in England with Lindsey, his last Sunday being spent at the Essex Street Chapel. He sailed on the *Sansom* from Gravesend on 8 April 1794, finally reaching America on Wednesday 4 June.

In a preface to the sermon delivered to his Hackney congregation on the eve of his departure he wrote:

I cannot refrain from repeating again, that I leave my native land with real regret, never expecting to find anywhere else society so suited to my disposition and habits . . . perhaps I may, notwithstanding my removal, for the present, find a grave . . . in the land that gave me birth. (51).

This was not to be—he never returned to this country and died in Northumberland, Pennsylvania on Monday, 6 February 1804, his wife predeceasing him in 1796.

APPENDIX

Visual Evidence of Dr Priestley in London

The following sites retain at least some of their eighteenth-century appearance.

Shelburne House, later called *Lansdowne House*. Now occupied by the *Lansdowne Club* at 9, *Fitzmaurice Place*, to the S.E. of *Berkeley Square*. Built in 1755 to designs by *Robert Adam*, purchased by *Shelburne* in 1765. The construction in 1933 of *Fitzmaurice Place* necessitated demolition of the north and south wings and removal of parts of the front rooms with subsequent replacement of the original facade on the modified building. The dining room of 1765–8, designed by *Adam*, is now in the *Metropolitan Museum*, *New York*, and the drawing room in the *Philadelphia Museum of Fine Art*. See *A. T. Bolton, The architecture of Robert and James Adam*, *London*, 1922. For a brief description of the way in which the *Lansdowne Club* was incorporated in the *Lansdowne House*, see *C. Graves, Leather armchairs*, *London: Cassell* 1963, pp. 168–9. A print of the house as it was in the eighteenth century is reproduced in reference (38).

Gravel Pit Meeting, Hackney. Dissenting Chapel built in 1716 and used for worship until 1904. Described in 1853 as being 45' × 60' in floor area with a flat, low ceiling partly supported by wooden columns. The building apparently survives as part of a larger structure in *Ram Place*, just S. of *Morning Lane*, *Hackney*. See *Account of the Gravel Pit Meeting House*, *J. Davies*, *London* 1853; *A. Ruston, Unitarianism and Early Presbyterianism in Hackney*, *London*, 1980. Application for a GLC blue plaque commemorating *Priestley* has been made for this building.

Franklin's House at 36 *Craven Street* is little changed from the original; *Franklin*

lived here from 1757–1772 (when he moved to No. 1, now demolished). A red LCC plaque marks the house, now occupied by the Science Policy Foundation, and there is a memorial tablet in the hall. Franklin's parlour, where he would have entertained Priestley and where he met representatives of George III for discussions on the American colonies, remains relatively unchanged on the first floor. There are plans to restore the house as a Franklin Centre. See also *Survey of London*, 18, pp. 36, 38, 1937.

Bentley's house and Wedgwood's Showrooms, 12–13 Greek Street, Soho. Originally Portland House. Bentley lived at No. 11 from 1774–1777, while 12–13 was used as Wedgwood's London showroom from 1774–1794. The building still stands though greatly altered inside and with some changes to the facade. A blue jasperware plaque was placed on the building in 1980. Wedgwood, on his frequent visits to London, often stayed at Greek Street, and it is quite possible that Priestley lodged with him or Bentley. See Gaye Blake-Roberts, *The Greek Street Showrooms*, Wedgwood Museum, 1980; *Survey of London*, 33, p. 173, 1966.

New College, Hackney. Originally Homerton House, an early eighteenth century building in an 18-acre site. The College closed in 1796 and the building was demolished in 1802. All that remains is a 30 metre boundary wall in Coniston Walk (E.9), just west of the new Homerton hospital site. Priestley Street, a faint reminder of the past of the area, was a short road between Homerton Row and Homerton High Street and still appears on some modern maps; it is now an unmarked driveway. M. Gray, private communication and see East End News, 4 September, 1981, p. 10; London Chronicle 3 July, 1787.

Bunhill Fields Burial Ground, City Road, E.C.1. Priestley's only brother, Timothy is buried here, as are Belsham, Kippis, Lindsey and Price. Price's tomb is on the righthand side of the entrance from City Road; Belsham and Lindsey's tomb lies at the N.W. corner of the garden area of Bunhill Fields.

Statues etc. There is a life-size statue of Priestley over the entrance to the Royal Institute of Chemistry at 30 Russell Square; it was sculpted in 1915 by Gilbert Bayes. See also McClachlan, ref. (2). For other London sites associated with Priestley see (9, 10, 12, 14, 26, 28, 30, 40, 42, 44, 47).

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NOTES

- (1) H. G. Wayling, *Nature*, Lond. **131**, 350–351, 1933.
- (2) A good recent biography is F. W. Gibbs, *Joseph Priestley, Adventurer in Science and Champion of Truth*, London: Nelson, 1965. Other biographies are by Thorpe (45) and A. D. Holt, *A Life of Joseph Priestley*, London: O.U.P., 1931: Rutt (17), though inaccurate in some respects, is indispensable. The scientific aspects of his work are well covered in (19) and (23). For correspondence between Priestley and his associates see refs. (17–19). An iconography of Priestley has just been published: J. McLachlan, *Joseph Priestley, Man of Science 1733–1804. An Iconography of a Great Yorkshireman*, London: Merlin Books, 1983.
- (3) J. Priestley. *Memoirs of Dr Priestley, to the year 1795, written by himself, with a continuation to the time of his decease, by his son, Joseph Priestley*, London: J. Johnson, 1806; (a) p. 7, (b) p. 28, (c) p. 39 and footnote; (d) p. 88; (e) p. 72; (f) p. 69; (g) p. 77; (h) p. 46; (k) p. 65. Pagination is to the 1806 edition; the Memoirs have also been reprinted with extensive notes by J. Lindsay (*Autobiography of Joseph Priestley*, Bath: Adams and Dart, 1970).
- (4) J. Priestley. *The History and Present State of Electricity with Original Experiments*, London: J. Johnson 1767 (second and third editions 1769, 1775). For the electrical work see R. E. Schofield, *Arch. Int. Hist. Sci.*, **16**, 277–286, 1963; J. McEvoy, *Br. J. Hist. Sci.*, **12**, 1–30, 1979.
- (5) J. Priestley. *The Doctrine of Philosophical Necessity Illustrated*, Birmingham: J. Johnson, 1782, p. 123. For a background to Priestley's theological views see C. G. Bolam, J. Goring, H. L. Short and R. Thomas, *The English Presbyterians. From Elizabethan Puritanism to Modern Unitarianism*, London: Unwin, 1968.
- (6) R. E. W. Maddison and F. R. Maddison, *Notes & Records R. Soc. Lond.*, **12**, 98–113, 1956; J. Tann, S. Price and D. McCulla, eds., *Joseph Priestley in Birmingham*, University of Aston: 1980.
- (7) D. McKie, *Notes & Records R. Soc. London.*, **10**, 51–59, 1952.
- (8) For Priestley's rather disparaging view of himself as a chemist, see R. Schofield, *Ambix*, **14**, 1–15, 1967; J. McEvoy, *ibid.*, **15**, 115–123, 1968.
- (9) Andrew Kippis, F.R.S., 1725–1795. Pastor of the Dissenting Chapel in Princes Street, Westminster; lived close by in Crown Street. Author of *Biographia Britannica*. Buried in Bunhill Fields (Appendix).
- (10) John Canton, F.R.S., 1718–1772. Physicist and astronomer, taught at the Spital Square Academy and lived close by in Bishopsgate Road (E.1.). Twice Copley medallist (1751, 1765).
- (11) Seddon to Canton, 18 December 1765; Canton Papers, Vol. 2, Royal Society Archives.

- (12) The Royal Society occupied two houses (now demolished) in Crane Court (E.C.4); in 1780 it moved to Somerset House. For descriptions and illustrations see H. Florey, *Nature*, **200**, 1256–1263, 1963; C. A. Weld, *A History of the Royal Society*, London: 1868.
- (13) Benjamin Franklin, F.R.S., 1706–1790. Physicist, chemist, politician; representative of American colonies in England, Copley medallist 1753. R. V. Jones, *Notes & Records R. Soc. Lond.*, **31**, 201–225, 1976. See also (29) and Appendix.
- (14) Richard Price F.R.S., 1723–1791. Nonconformist minister, mathematician, a founder of the basis of modern life assurance. From 1758–1783 minister at Newington Green Chapel (building still stands in Newington Green, though enlarged in the 19th century); also minister at Gravel Pit Meeting, Hackney, 1770–1791. Lived at Newington Green until 1787 and then in St Thomas Square, Hackney. Buried in Bunhill Fields (see Appendix). D. O. Thomas, *The Honest Mind, the Thought and Work of Richard Price*, Oxford; Clarendon, 1977.
- (15) Priestley to Canton, 14 February, 1766; Canton Papers vol. 2. Royal Society archives.
- (16) Certificate Book, Fellows of the Royal Society, 1751–1765. Royal Society archives.
- (17) See J. T. Rutt, *The Theological and Miscellaneous Works of Joseph Priestley LL.D., F.R.S.*, vols. I–XXV. London: 1817–1832. Vol. I, in two parts, contains an abridged version of the Memoirs (3) and 581 letters; vol. XV is also of interest. An interesting illustrated and annotated version of vol. I (in two parts, by H. Hutton, 1831) is available in Dr Williams's Library.
- (18) Dates on which he was in London can be deduced from the papers he read to the Royal Society (Letters and Papers Decades V–IX) and letters, mostly of a scientific nature, in the Society's possession (some reprinted in (19)); also from letters, mostly of a theological nature, in Dr Williams's library (some reprinted, occasionally inaccurately, in (17)).
- (19) R. E. Schofield, *A Scientific Autobiography of Joseph Priestley*, Cambridge (Mass.), M.I.T. Press, 1966. H. C. Bolton, *Scientific Correspondence of Joseph Priestley*, New York, 1892; reprinted 1970, Kraus Reprint Co., New York.
- (20) J. Priestley, *Directions for Impregnating Water with Fixed Air, in order to communicate to it the peculiar Spirit and Virtues of Pyrmont Water and other Mineral Waters of A similar Nature*, London: J. Johnson, 1772.
- (21) J. Priestley, *Experiments and Observations on Different Kinds of Air*, (a) vol. II, p. 273, 1775; (b) vol. I, p. 155, 1774 (vol. III was published in (1977)); second edition I, 1775; II, 1776; III, 1777. London: J. Johnson. Subsequent editions were published in 1781 and 1790.
- (22) J. Priestley, *Phil. Trans. R. Soc. Lond.*, **62**, 157–264, 1772.
- (23) For more details and dates of his chemical work, see J. R. Partington, *A History of Chemistry*, Vol. III, 237–297, London: McMillan 1962; J. G. McEvoy, *Ambix*, **25**, 1–55, 93–116, 153–175, 1978; *ibid.*, **26**, 16–38.
- (24) D. McKie, *Ambix*, **9**, 1–22, 1961, also Weld Vol. II, p. 66 (ref. 12).
- (25) Priestley to Canton, 28 February 1770; Canton Papers Vol. 3. Royal Society archives.
- (26) Joseph Johnson, 1738–1809. Bookseller and publisher of literature. His premises

- in Paternoster Row were burned down in 1770 and he moved to 72 St Paul's Churchyard (the site is now Bancroft House, Paternoster Square). See G. P. Tyson, *Joseph Johnson, a liberal publisher*, University of Iowa Press, 1979.
- (27) J. Boswell. *Boswell in Search of a Wife*, ed. F. Brady and F. A. Pottle, London: Heinemann, 1957, 318–9.
- (28) Coffee Houses. The London Coffee House at 24 Ludgate Hill continued until 1867, receiving mention in 'Little Dorrit'. It was demolished in 1872. Old Slaughter's Coffee House, founded in 1692, was at 74 and 75 St Martin's Lane, demolished in 1843 when Cranbourne Street was built (for description and illustration see *Survey of London*, 20, p. 117 and pl. 120, 1940). In 1742, a New Slaughter Coffee House was opened at No. 82 (now Westminster County Court). The Chapter Coffee House was at No. 50 Paternoster Row, opened in 1719, demolished 1887. See B. Lillywhite, *London Coffee Houses*, London: Allen and Unwin, 1963. For the Club of the Honest Whigs, see also V. W. Crone, *William and Mary Quarterly*, 23, 210–33, 1966.
- (29) B. Fay, *Franklin, The Apostle of Modern Times*, Boston; 1929, p. 271.
- (30) Sir Joseph Banks, F.R.S., 1743–1820. Botanist, accompanied Cook on the *Endeavour* 1768–1771, President of the Royal Society 1776–1820. Moved from Burlington Street in 1776 to 32 Soho Square, a magnificent house and museum. It was demolished in 1937 (site now occupied by Twentieth Century House, corner of Frith Street and Soho Square); see *Survey of London*, 33, p. 118, 1966. The fireplace of the great South drawing room is now at the Royal Institution, Albemarle Street.
- (31) J. Yates, F.R.S., 'Portraits, Drawings, Original Letters, Anecdotes and Other Memorials of Joseph Priestley, LL.D., F.R.S.,'. A remarkable compilation of 1864, well described by its title: Royal Society archives.
- (32) William Petty, Earl of Shelburne, 1737–1805. President of the Board of Trade 1763; Home Secretary, 1766–68 and 1782; First Lord of the Treasury, 1782–83; created Marquess of Lansdowne, 1784. A great patron of the arts and collector of sculpture, painting and manuscripts. His liberal ideas attracted him to political thinkers and scientists in England and abroad, but he was a rather isolated figure in the active, political sphere.
- (33) Letters to author from the Earl of Shelburne and his former archivist, Miss D. Slatter.
- (34) Ref. (21) 1st ed. vol. II, p. 34; Priestley to Pringle, London 15 March, 1775 (Royal Society archives).
- (35) R. M. Craven, *Nature*, Lond. 132, 25, 1933; P. J. Hartog, *idem.*, 256, pp. 25–26.
- (36) Priestley to Price, 1 April, 1775 (Calne); Royal Society archives.
- (37) A. J. Ihde in Joseph Priestley, *Scientist, Theologian and Metaphysician*, ed. L. Kieft and B. R. Willeford. Lewisburg: Bucknell University Press, 1980, pp. 62–92. R. E. Kohler, *Ambix*, 22, 52–57, 1975, C. E. Perrin, *ibid.*, 16, 140–151, 1969. See also J. Priestley, *The Doctrine of Phlogiston Established, and that of Water Refuted*, Northumberland (U.S.A.): A. Kennedy, 1800, p. 88.
- (38) Bryan Higgins (1737 or 1741–1818). Irish chemist who founded a School of Chemistry at 13 Greek Street, Soho from 1774. He worked on pneumatic chemistry and formulated a particulate theory of gases. F. W. Gibbs, *Chem. in Brit.* 1, 60–65, 1965 and Partington (23).

- (39) J. Priestley, *Philosophical Empiricism*. London: J. Johnson, 1775.
- (40) Reverend Theophilus Lindsey, 1773–1808. Formerly Vicar of Catterick, Yorkshire; gave up this living in 1774 to found the country's first Unitarian Chapel in Essex Street; new chapel opened there on 29 March 1778 and Lindsey and his wife lived there from summer 1778. Essex Hall was destroyed in 1944; site now occupied by Unitarian Headquarters. M. Rowe, *The Story of Essex Hall*, London: Lindsey Press, 1959. Buried in Bunhill Fields (Appendix).
- (41) Priestley to Banks, 25 and 27 April 1790; Dawson Turner Collection, 7, 104–111. British Museum (Natural History) Library.
- (42) T. E. Allibone, *The Royal Society and its Dining Clubs*, Oxford. Pergamon, 1976; idem., *Notes & Records R. Soc. London.*, 22, 186–192, 1967.
- (43) Josiah Wedgwood's Commonplace Book, 1, p. 168.
- (44) Edward Nairne, F.R.S., 1726–1806. Instrument maker of international repute who made optical and electrical equipment for Priestley (3k). His firm, Nairne and Blunt, were at 20 Cornhill, opposite the Royal Exchange.
- (45) (a) T. E. Thorpe, *Joseph Priestley*. London: Dent, 1906, pp. 145–147. (b) On 16 July 1791 George III wrote from Windsor:
 . . . orders for . . . troops to . . . restore order [in Birmingham] is incumbent on the Government, though I cannot but feel better pleased that Priestley is the sufferer for the doctrines he and his party have instilled . . . yet (I) cannot approve of their having employed such atrocious means of shewing their discontent. Later correspondence of George III, ed. A. Aspirall, vol. 1, p. 551. Cambridge 1962.
- (46) Lindsey to Alexander, 15 October, 1791.
- (47) Rate-books and maps of the period indicate that this house was on the site now occupied by 111–115 Lower Clapton Road, S. of the junction with Clapton Passage. The house was demolished around 1882. M. Gray, *Enlightenment and Dissent*, 2, 1983. A photograph of the house, taken in 1880, is preserved in the Hackney Archives.
- (48) From Samuel Rogers's diary of 1792. P. W. Clayden, *The Early Life of Samuel Rogers*. London: 1887, pp. 240–287.
- (49) R. A. M. Dixon of Thearn, *J. Chem. Ed.*, 11, 284–287, 1934.
- (50) British Museum, Sayers Collection, print 8108; Prints and Drawings Department. Published 18 June, 1792 by Thos. Cornell:
 Dr Priestley's son introduced to the National Assembly by Monsieur Francois de Neufchatel, who holds him up by a pair of leading strings, standing in a Tub instead of a Tribune and announcing to the Assembly thro' a Trumpet the good news of an Englishman having become a Citizen of France.
 The young Englishman having brought with him a bottle of Phlogiston from Hackney College is administering it in the form of electric sparks to the National Assembly: who are drawn in the form of Asses, Owls, Hogs and Frogs; while the Ancients in the Gallery are applauding with their mouths wide open.
- (51) J. Priestley, *The Present State of Europe Compared with Ancient Prophecies*, Gravel Pit Meeting, 28 February, 1794; see vol. XV of ref (17).