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JOSEPH PRIESTLEY
(1733-1804)[1]

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Joseph Priestley, now probably best known as the discoverer of oxygen, was in his own lifetime as famous, or infamous, as a radical political and religious leader. At the same time, he was a great educator, using his practical experiences of teaching to support the many educational treatises he produced. His influence on English education was deep, being immediately effective in radical, educational circles, particularly those associated with the Unitarian religious movement, and thence disseminated into the educational changes of the nineteenth century.

Priestley lived at a time when England was dominated by an established order of aristocracy, landed gentry and church, but a massive social, economic, intellectual and cultural change was taking place. The aristocracy, great landowners holding leading positions in royal circles and in the Church of England, had an unshakable grip on political power and, with the gentry, ran local government. The middle ranks in society, however, including both merchant princes rich from tobacco and slave trading, and new industrialists making fortunes in coal, iron and cotton, were growing in size and confidence. The beginnings of industrialization and urbanization were creating new tensions and groupings in society (Porter, 1990).

Such tensions were reflected in religion where those people who refused to conform to the established church—the Church of England—were condemned as dissenters or non-conformists. The most radical of these were the 'rational dissenters', including the Unitarians. The latter were a small group, but they attracted many leading industrialists and progressive intellectuals. Like other 'enlightened' thinkers, Unitarians agreed that humanity and its environment was best understood by reason, experience and experiment, but they fused religion with philosophy and science, supremely confident that science was a way of understanding the rationality of God's creation and that only good could result from open, free inquiry. Tolerant and optimistic, they sought a new, just moral order in society. They supported the American Revolution and enthusiastically welcomed the outbreak of the French Revolution. Many were involved in the struggle to reform the English constitution by widening political power and participation and particularly by repealing those Acts of Parliament that militated against dissenters. Foremost in all this was Joseph Priestley.

Life and educational activities

Priestley was born and educated in Yorkshire, but from 1752 until 1755 he attended Daventry Academy, one of those 'dissenting' academies which offered some of the best higher education of the day. England's traditional education system, in contrast, had many drawbacks in the second half of the eighteenth century. The two universities, Oxford and Cambridge, from whose degrees dissenters were excluded, had become rather ossified and self-contained, reflecting in their traditional studies and comparative inactivity both their clerical dominance and their increasing reliance on the governing classes. Both the public and grammar schools, which together provided traditional, classical education for boys from social classes above the poor, were generally at a low

ebb and suffering from competition with private schools offering either classics or a more modern curriculum possibly including mathematical and vocational subjects. Schools of private education for middle-class girls were even worse, giving little but an elementary education or a superficial grounding in showy accomplishments designed to catch a husband. There was little schooling for the poor, the few charity and private schools being increasingly insufficient at a time when the population was rapidly expanding.

In this educational milieu it was the dissenters who tended to offer the best education, certainly at the higher level. Their leading academies had a curriculum more modern than that of the universities and led students to examine all sides of every issue. Joseph Priestley both took his own stimulus from such teaching and, in turn, helped to expand the curriculum of the most liberal of them, thus developing an outstanding education which foreshadowed developments in the university education of the future. His ideas were also influential in schooling generally. He himself ran a school for both boys and girls from 1755 to 1761. He successfully introduced lessons in both practical science and modern history. For the latter, he began preparing the much published *Chart of Biography*, which in 1766 contributed to his election as a Fellow of the Royal Society. His concern to help his pupils write plain English correctly and fluently led him to publish for them in 1761 his *Rudiments of English Grammar*, which he later enlarged and which was in print for half a century. So successful was he as a teacher that in 1761 he was invited to become a tutor in languages and 'belles lettres' at the young Warrington Academy, the flagship of dissenting education.

At Warrington, Priestley's wide-ranging lectures, particularly on history and law, furthered a great broadening of the curriculum in an already innovative institution. He included so much in his courses that when he left they had to be divided between three men. He also lectured on chemistry and, for one year, on anatomy. He established a small library and, at a time when there was a dearth of suitable textbooks in all subjects, continued a lifelong series of educational works, many of which were based on his own lectures.[3]

At the same time, Priestley became increasingly interested in experimental philosophy in which he was largely self-taught and in which, from his Warrington days, he established an international reputation. His *Introduction to Electricity for Beginners* (written in response to strong demand in 1768) was quickly to go through two editions. No wonder that Priestley was seen as the most brilliant of the superb staff at Warrington in its most progressive period or, as Jeremy Bentham said: 'Warrington was then classic ground. Priestley lived there' (Gibbs, 1965, p. 34).

From 1765 to 1780 Priestley was in turn a dissenting minister at a chapel in the city of Leeds and literary companion to the Earl of Shelburne. By the time he became co-pastor of the New Meeting in Birmingham in 1780 he was the leading figure in English pneumatic chemistry, a formidable adversary in religious debate and a fluent publicist of educational reform. He also became the foremost protagonist in the struggle for civil and religious liberties. This post lasted until reaction to the French Revolution resulted in Priestley's becoming one of the most hated radicals of the day and drove him firstly from Birmingham in 1791 and then to America after four years in London where he had delivered gratis, at the New College, Hackney, his Warrington lectures on history and chemistry. His educational activities continued to the last, his final educational publication being *Hints concerning Public Education*, written for Thomas Jefferson's proposed new public institution of higher learning in Virginia.

Educational philosophy and psychology

In education, therefore, Priestley was as much involved with the practice as the theory, and this influenced his educational writings. But he was also deeply interested in rationalist philosophy, particularly that concerning the working of the human mind. Like most dissenting educators of the eighteenth century, he admired John Locke, but even more than this he absorbed David Hartley's

Observations on Man which he reissued in condensed form and developed to become the cornerstone of Unitarian educational thought in the eighteenth and early nineteenth centuries.

Priestley welcomed Hartley's attempt to use Newtonian techniques to formulate a few basic wide-reaching laws to establish a clear theory of the mind. Hartley had developed a full associationist psychology, based on current physiological knowledge and maintaining that all complex or 'intellectual' ideas arise from simple ones, which, in turn, 'arise from the impressions made by external objects upon the several parts of our bodies.' These sensations, he said, when often repeated, give rise to ideas and any series of sensations. If associated with each other sufficiently, they have 'such a power over the corresponding ideas [...] that any one of the sensations when impressed alone, shall be able to excite in the mind the ideas of the rest' (Hartley, 1976, vol. 1, 65).

From this, Hartley argued that associationism was the basis of man's mental, emotional and moral life, a line of argument Priestley eagerly seized upon in stating that 'nothing is requisite to make any man whatever he is, but a sentient principle [...] and the influence of such circumstances as he has actually been exposed to' (Priestley, 1790a, p. 184).

Priestley welcomed the analysis of complex ideas whereby 'our external senses furnish the materials of all the ideas of which we are ever possessed' and wholeheartedly agreed that, therefore, since not all associations were good ones, development must not be left to chance — 'we [must] learn to cherish and improve good ones, check and root out such as are mischievious and immoral [...]' (Priestley, 1790a, p. 189; Hartley, 1976, p. 81). Rather than reliance on innate character or divine intervention, tremendous importance was given to environment and circumstance, in the belief that 'children may be formed or molded as we please' (Priestley, 1782, p. 521; Hartley, 1976, I, p. 82; II, p. 453;). In associationist thought, intellectual, physical and moral development were seen by Priestley as interdependent. Thus real virtue for him was 'the result of reflection, or discipline and much voluntary exertion'; making good choices and judgments depended on extensive intellectual education, 'a large stock of ideas and much experience'; a sound intellectual and moral development depended on a healthy body although 'muscular habits' were not conducive to sensibility of mind (Priestley, 1794, p. 389; 1775, p. 21; 1970, pp. 122-23). The law of association, indeed, was the basis of education and life, a systematic means of achieving moral, religious and intellectual objectives and even perfection (Priestley, 1782, p. 515).

Who should be educated?

The implications of Priestley's educational philosophy seemed to be that all people should receive the same careful, wide education, and that parents and teachers especially should both fully understand the law of association and be well-educated themselves. Thus Priestley advocated a far higher level of education for females than was usual. Firstly, since development depended completely on education, women were not, as many people assumed, inferior in mental capacity. Secondly, since women had the same moral duties and passions as men and since morality and virtue were improved by intellectual culture, women had as much right to the latter as men. Thirdly, women needed to be well-educated to be respected wives and good mothers. Women who were well-educated intellectually and morally would be well-fitted to educate and influence others and to obtain an independent living if the need presented itself (Priestley, 1790b, p. 419; 1780, pp. 171, 137-38).

Similarly, the logical extension of Priestley's principles ought to have been that people of all classes in society should receive the same education. Despite the fact, however, that contemporaries saw him as the arch-leveller and regularly burnt him in effigy (Lincoln, 1971, p. 179), Priestley was ambivalent about the education of the poor. He was concerned about their welfare and desirous of their literacy, but his deep fear of State control over education and thus of uniformity of thought and belief, instead of variety and freedom, prevented him from advocating a

national system. His educational writings were directed towards the middle-classes and for others he held the reservations typical of his class and period (Priestley, 1771, pp. 43-47).

The curriculum and methods

The law of association also implied what should be learned and how it should be learned. For Priestley 'the most effectual discipline of the mind' was experience and thus a reliance on empirical knowledge favored those subjects whose content or methods were based on experience and inductive reasoning. In the human sciences, history was the outstanding example of these. As Priestley said, history was 'anticipated experience', perhaps not as striking as personal experience but more correct and complete. History enabled students to understand change and cause and effect, to improve their judgment and understanding, to lose their prejudices, and to learn from the past how to improve affairs in the future and appreciate the wide variety of human nature (Priestley, 1803, p. 25 ff.). Until this time, however, history in formal education had always been 'ancient' history, so Priestley's introduction of modern history as an academic discipline at Warrington was a revolutionary innovation.

In the same way, Priestley, the leading English chemist of the day, delighted not only in contemporary discoveries in the physical sciences, but also in their methods of study. He rejoiced that scientific knowledge was increasing and, since this meant that 'the security and happiness of mankind are daily improved', pleasure could be taken in these studies through association. The study of science, like that of history, seemed to prove that divine providence was 'gradually conducting things to a more perfect and glorious state' (Priestley, 1767, pp. 341-42, 345). No wonder, therefore, that at Hackney Priestley developed further the scientific teaching which he had encouraged at Warrington, teaching especially 'the whole of what is called Chemistry' (Priestley, 1794, p. 385).

As a Unitarian minister, Priestley tried to advance radical attempts to study the beginnings of Christianity in a historical context and to promote the idea of progressive revelation. He established Sunday classes for young, middle-class 'rational dissenters' of both sexes, writing appropriate materials for them in his optimistic hope that simple, non-dogmatic religious teaching would prove satisfying, and that freedom of inquiry alone could develop and augment the nation's wisdom. Such a principle, which was upheld only by the liberal dissenting academies in higher education at the time, was as passionately denounced by others as it was passionately upheld by Priestley (Priestley, 1791b, pp. 458-74; 1791a, pp. 420-40).

Priestley realized that to avoid forming false biases or misleading impressions through association, ideas and language should be kept clear. In his Warrington lectures on *The Theory of Language and Universal Grammar* he stated how important it was to understand the nature of language — 'the means of preserving and bringing into perfection all other arts; [...] the measure of our intellectual powers [...]; the greatest distinguishing mark of a civilized being' (Priestley, 1762, p. 125). Against the fact that English was still not taught as a subject in its own right in public and grammar schools, Priestley wrote and illustrated *The Rudiments of English Grammar*. He used English rather than the customary Latin terms and filled the work both with profuse, clear examples of the language, drawn from modern popular literature and normal speech, and with extracts from the best known English authors and poets (Priestley, 1798, pp. 3-118).

To assist the inculcation of clear knowledge, Priestley urged teachers to illustrate and exemplify their ideas and to welcome students' questions and observations (Priestley, 1777, pp. 259; 1780, 219). Similarly, he stressed the vital importance of systematic methods and this was why he carefully classified and related the periods and different aspects of history in his own *Chart of History* and *Chart of Biography*. He was keen on visual aids, such as models, and utilized all methods which helped students fully understand the significance of their work. Thus, in history he spent much time discussing both the multifarious kinds of sources which historians use and the

works of different historians through the ages. In science he insisted on experiment as the key to understanding and clear thinking, and he emphasized that all studies should be adapted to the age and capacity of the learner (Priestley, 1803, pp. 54-202, 463-83; 1769, p. 10).

Priestley most clearly exemplified the law of association in his Warrington lectures, published in 1777 as *A Course of Lectures on Oratory and Criticism*. With ample illustrations from the English and ancient classics, Priestley proved how the use of associationism was the basis of good speaking, writing and, indeed, teaching and thus influenced the formation of imagination, taste and all intellectual pleasures (Priestley, 1777, pp. 257-482).

Education for a new order

In his dedication to his *Course of Lectures*, Priestley vigorously declared that his was an age in which public distinctions based on mere force, superstition or accident would no longer stand unless they were made 'truly respectable and useful' by 'good principles and good dispositions, joined to a cultivated understanding' (Priestley, 1777, p. 255). His educational philosophy, in fact, was strongly influenced by his perception of the needs of the rising industrial and commercial middle-class, in which were found many dissenters, including the energetic Unitarians. Convinced that it was an era of dramatic change for humanity, of 'new light [...] bursting out in favor of the civil rights of men', Priestley exhorted the students of Hackney College to help obtain:

> the flourishing state of science, arts, manufactures and commerce; the extinction of wars [...], the abolishing of all useless distinctions. [...] In short to make government as beneficial [...] as possible. Let the Liberal Youth be everywhere encouraged to study the nature of government and attend to everything that makes nations secure and happy (Priestley, 1791*a*, p. 434).

This was why Priestley included in the study of history not only every aspect of civil government including law, but also the principles of commerce and taxation, subjects then generally dismissed as 'illiberal' because trade and commerce, from the point of view of the ruling classes, were viewed as activities of the lower orders in society. Priestley, however, lived and worked among those who were revolutionizing England into the first industrial nation. An active participant in the scientific and industrial concerns of the small but vital Lunar Society of Birmingham, which included in its membership James Watt, Matthew Boulton and Josiah Wedgwood, Priestley was certain that the leaders of the future would come from those who mastered the sources of knowledge which were changing the world (Schofield, 1963; Priestley, 1803, p. 5, 22, 313-17, 403-15, 471-75). The very scientific and industrial interests which were scorned in traditional education were to him the just basis of a prosperous meritocracy. In contrast to widespread traditional views, he championed science rather than the arts as having the liberalizing and humanizing role in education. He accepted that 'the arts [...] promote society and humanity, which are so favorable to the progress of science', but believed that science was where human understanding reached its apogee, 'grasping at the noblest objects' and thus enabling mastery of the powers of nature, an increase in the well-being of mankind and thence a golden age (Priestley, 1803, p. 311; 1767, p. 345).

For Priestley, literary and scientific excellence accompanied by a proper moral development were necessary in a 'truly liberal education'. He considered that England needed to modernize higher education if it was to develop to its full potential. This was why he upgraded the teaching of modern languages, particularly the vernacular (although he recognized the uses of the ancient languages, especially for intending ministers) and why he made his reforms at Warrington. He sought those who would fill 'the principal stations of active life' and might well influence politics to understand the history and laws of their country and 'be well-instructed in the great and leading principles of wise policy' (Priestley, 1794, p. 389; 1791*a*, p. 420-21; 1780, p. 185-228). In a similar vein, he stimulated elocution lessons and recognized the importance of travel abroad, although his

usual open-mindedness balked a little at the thought of possible unwelcome influences from foreign morals and religion (Priestley, 1970, p. 88-9; 1780, p. 146-8).

What Priestley ardently desired was to educate enlightened leaders of the middle-class, thereby raising their culture and status. He did not admire the hereditary aristocracy and condemned their 'public' schools as immoral and their universities as repressive (Priestley, 1780, p. 50-2, 111-19). He viewed middle-class dissenting academies as more liberal and enlightened, open to all, less expensive, teaching liberal principles in both religion and politics, and resembling 'rivers, which taking their natural course, fertilize a whole country'. In contrast he depicted the universities as 'pools of stagnant water, [...] offensive to the neighborhood' and inculcating 'slavish and illiberal' principles (Priestley, 1787, p. 128; 1791*a*, p. 425).

Priestley anticipated that only the rudiments of any subject would be taught, formal education being only a preparation for lifelong development and application (Priestley, 1794, p. 385). He had little appreciation of the aesthetic and fine arts, but he did want to promote those arts and sciences which would benefit mankind and give the middle-class a proper status within the community, for 'in fact it is knowledge that finally governs mankind, and power, though ever so refractory, must at length yield to it' (Priestley, 1791*a*, pp.439, 431).

Priestley's influence on education

Thus we see that Priestley advocated a liberal and useful education, based on the principles and methods of Hartleian psychology, which would serve the interests of both rational religion and of the new industrial and commercial classes. In formal education, he was an exciting and innovative force in both the subjects and the methods he emphasized. He wrote prolifically on all these; many of his books went into several editions and thus his ideas were popularized at least amongst progressive educators. He made difficult subjects understandable and the sources of knowledge more accessible, as in his promotion of the libraries of Leeds and Birmingham. His work was not free of criticism, although even critics like Hazlitt, might admire his range, diversity and clarity (Hazlitt, 1904, p. 357-59).

Priestley was successful in stimulating interest in Hartley's works. His most immediate impact was on the Unitarians themselves whose subsequent wide involvement in educational ventures of all kinds thus disseminated his ideas (Watts, 1987). Well-known English educators of the time, such as Dr. John Aikin, Anna Barbauld, Lant Carpenter, Mary Carpenter and Harriet Martineau, all exemplify this (Aikin, 1823; 1825; Carpenter, L., 1820; Carpenter, R.L., 1842, p. 497; Martineau, 1877, vol. 1, p. 104). Such Unitarians as these and others developed Priestley's views on the curriculum. His work in promoting education in the vernacular and English prose and poetry was eagerly taken up, for example, by William Enfield and thus spearheaded a growing movement for the serious teaching of English (Enfield, 1808). Unitarian educators enthusiastically included modern history in their teaching of and writings for children and persisted in their acceptance of it as a legitimate subject in higher education. They also promoted geography in schools but more significant was their involvement in science, particularly through their prolific writings for readers of all ages and through their membership and founding of scientific societies, where they achieved an influence greatly disproportionate to their numbers (Watts, 1987).

That Unitarians were so affected by Priestley might not seem of significance since they comprised a very small group in society and were unpopular because of their radical religious and political views, even before extreme reaction to the French Revolution and its supporters turned particularly on them. The very academies they lauded, Warrington and Hackney, both failed in turn. Their emphasis on intellect rather than imagination was to make them unfashionable in some quarters in the days of the Romantic Movement. They did, however, have a disproportionate impact on education an on local politics and the industrial world, and thus disseminated Priestley's ideas. Through their prominence in scientific societies and their writings, including their large

contribution to the growing corpus of children's literature and educational books (often one and the same), Warrington and Hackney captured a wide audience for their ideas.

Furthermore, Unitarians ran prestigious schools to which many of liberal persuasions, not necessarily those belonging to the Unitarian Movement, sent their children, both boys and girls. The schools of Thomas Wright Hill, an ardent disciple of Priestley, and his sons, for example, attracted wide public interest. The Hills' system of education has been termed an 'educational refraction of Priestley's ideas' by Armytage, who has marked the chain leading from M.D. Hill through his grandson, a science master at Eton who inspired Julian Huxley, the first Director-General of UNESCO and proponent of a philosophy of 'world scientific humanism' (Armytage, 1967-68). Typically, both Manchester College (Watts, 1986) and schools run by Unitarians offered a wide classical, modern and scientific curriculum and produced many eminent men and women who, thereafter, through their involvement in many of the educational ventures of the nineteenth century, spread further the ideas which they had imbibed. Not least was this shown in the excellent education that Unitarians gave to their daughters and thence the role models which women, such as Harriet Martineau, Elizabeth Gaskell, Mary Carpenter and Florence Nightingale, provided for others. Many Unitarians led the way in nineteenth century battles for women's rights (Watts, 1989).

It would be foolish to say that Priestley was the only educational influence on the Unitarians or that they, in turn, were the only radical educational reformers of the late eighteenth and early nineteenth centuries. It is true, however, that they were heavily involved in all manner of educational initiatives, that their principal impetus for many years came from Priestley and that he himself worked with other radical educators of the day such as those in the Lunar Society (Schofield, 1963).

Many of Priestley's ideals were not completely or even partially realized. His unpopularity and that of Unitarianism partly militated against absorption of his ideas. The Unitarians, always small in number, usually had to work in collaboration with others and this often diluted their objectives, or at least concealed their contribution. It is difficult to gauge how far Unitarians influenced the very gradual adoption of English literature, modern languages, modern history and geography in the grammar and public schools and the ancient universities after 1850, but they certainly had promoted these subjects since the time of Priestley. Most importantly, they had continued to both foster the study of science and to attract to their ranks eminent scientists, including applied scientists and engineers who were instrumental in creating industrial England. Unfortunately, however, outside the institutions that connected both Unitarians and other progressive educators, science did not become the integral part of the curriculum that Priestley had hoped at the time. As a result, we witness a serious drawback for an industrial nation in English education's lacking status for science and technology.

Priestley did achieve success in another important ideal, however. His strive to have free inquiry in education and to have open access to all educational institutions was a fight the Unitarians of the nineteenth century took up with alacrity, an example of whom is James Heywood, foremost in the successful campaigns to open up the universities of Oxford and Cambridge to non-Anglicans and to admit women to London University. Indeed Priestley, though over-optimistic in his assumptions of what could be achieved in education in the eighteenth century, forecast many of the changes which have gradually taken shape (as well as some of the problems, for example of central power dominating education) and through his own work, further disseminated by his followers, had an invaluable influence on English education.

Notes

1. Much of this profile is drawn from the unpublished Ph.D thesis: Watts, R.E. *The Unitarian Contribution to Education in England from the Late Eighteenth Century to 1853*. University of Leicester, 1987.
2. *Ruth Watts (United Kingdom).* Lecturer in education responsible for the training of history teachers and for post-graduate courses in the teaching of history at the University of Birmingham. Author of numerous

articles and book chapters on the Unitarian contribution to education in England, on women's educational history and on the teaching of history.

3. Priestley's writings, many of which had several editions, were reprinted in *The Theological and Miscellaneous Works of Joseph Priestley*. Ed. J.T. Rutt. London, 1817-31. 25 v.

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1762. 'A Course of Lectures on the Theory of Language and Universal Grammar.' *The Theological and Miscellaneous Works of Joseph Priestley* [Hereafter: *Works*]. Vol. 23. Ed. J.T. Rutt. London, 1817-31.
1767. 'The History and Present State of Electricity, with Original Experiments.' *Works*, op. cit., vol. 25.
1769. *A Familiar Introduction to the Study of Electricity*. London, Johnson & Payne.
1771. 'An Essay on the First Principles of Government.' *Works*, op. cit., vol. 22.
1775. 'An Examination of Dr Reid's Inquiry into the Human Mind [...].' *Works*, op. cit., vol. 3.
1777. 'A Course of Lectures on Oratory and Criticism.' *Works*, op. cit., vol. 23.
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