



Enlightenment and Dissent

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Editorial

The news of Henri Laboucheix's death came as we were going to press with the first issue of *Enlightenment and Dissent*, too late for us to pay a tribute to him. Professor Laboucheix created and was the first director of the Centre d'histoire des idées dans le monde Anglo-Américain at the University of la Sorbonne. He was a pioneer of interdisciplinary studies in philosophy, politics, economics and law, and the centre he created for the furtherance of these studies will be a most fitting memorial to him. He was a great enthusiast for the work of Richard Price, whose contributions were, he believed, considerably undervalued and unduly neglected both in Britain and in America, and he spent several years preparing his impressive *Richard Price: theoricien de la révolution Américain* which was published in 1970. It is sad that he did not live to see the publication last year of the very fine translation of his book by Sylvia and David Raphael. From its very beginning Henri Laboucheix gave very strong support to *The Price-Priestley Newsletter*, the precursor of this journal; he was a member of the advisory editorial board and contributed to the first issue. Those who knew him will treasure the memory of a dedicated scholar, a most courteous controversialist, a passionate defender of human rights, and a very kind and genial person.

This issue of *Enlightenment and Dissent*, the second, is devoted to the work of Joseph Priestley in celebration of the 250th anniversary of his birth. It is striking testimony to the liveliness of the current interest in Priestley and his works that in response to our request for contributions to this issue we received much more than could be contained even within one especially enlarged issue. We hope to be able to include all that we were not able to accommodate on this occasion in later issues of the journal. That we are able to produce a larger than usual issue is due to the generosity of Leeds City Council and Kirklees Metropolitan Council, both of whom made donations in honour of their celebrated citizen. We also have great pleasure in thanking Mrs Albert W. Johnson, Jnr. and Dr. Edward Lyons, both descendants of Joseph Priestley, who have made a donation to cover the costs of producing a special cover for this issue and including a reproduction of the Holloway engraving of the Artaud portrait. Converting the newsletter into a printed journal would not have been financially feasible had it not been for a grant towards the costs of making the transition made by the Trustees of the Sir David Hughes Parry Trust Fund at The University College of Wales, Aberystwyth. We wish to express our gratitude to the Trustees not only for their financial help but also for their confidence that in helping to support this venture they will be furthering the objects the Fund exists to promote.

This year there will be many celebrations of Priestley's anniversary, too many for us to list them all here, but we wish all those involved in organizing these events every possible success and good fortune.

M.H.F.
D.O.T.

JOSEPH PRIESTLEY: EMIGRANT AND JEFFERSONIAN

Colin Bonwick

America played a central part in the life of Joseph Priestley. Almost alone among those who had supported the colonies during the Revolutionary War he emigrated to the new independent United States, and spent the closing years of his life there. His life in Pennsylvania was one of mixed fortunes: for a time he was almost as unpopular there as he had been in England. Happily the crisis soon passed and the closing years before his death in 1804 were untroubled by the hostility that had led him to leave England in 1794 and nearly ejected him from the United States four years later. But America had a greater importance to Priestley than as a refuge from persecution. By friendships, correspondence and reading he acquired a considerable knowledge of American affairs and wove it into the fabric of his political analysis long before he emigrated. It became a model of social organization and political conduct valuable to his theoretical system—an example whose validity was confirmed by his experience of its actual operation during his years of residence there.

I

Priestley's concern with America took some years to mature. The surviving record confirms the indications of his writings: his interests lay first in theology, secondly in the natural sciences, and only thirdly in public affairs: and even here his prime interest as a controversialist lay in advocating the cause of Dissent in general and rational Christianity in particular. He had little interest in politics as opposed to political theory and claimed never to have participated in the late eighteenth-century movement for parliamentary reform—and if this was strictly incorrect it remains true that his contributions to the campaign were trivial. Similarly he seldom referred to the American colonies in his earlier writings, apart from the sections in his *Present state of liberty in Great Britain and her colonies*, issued twice in 1769, and *An address to Protestant Dissenters of all denominations* which was reprinted three times in the colonies in its year of publication, 1774. At this stage he was primarily concerned with the colonies' position in the empire. He developed his views on the Anglo-American relationship, declaring that its welfare depended 'on UNION and on LIBERTY' and argued that the fate of liberty in England was linked to the security of the colonists, for if the administration was able to enslave the Americans it was unlikely to allow its authority to be circumscribed at home.¹ When war came, Priestley quickly concluded that recognition of American independence was inevitable. Privately he argued for recognizing it but unlike Richard Price remained publicly silent, thus avoiding

the venomous criticism incurred by his friend. But if Priestley restrained his normally fluent pen it was not through lack of knowledge of America and its affairs. Before the war he maintained a warm friendship with the greatest of colonial Americans, Benjamin Franklin, and though their conversations were principally concerned with scientific experiments they also discussed politics particularly in the months before the war.

It is clear that Franklin had considerable influence over Priestley in political as well as other matters but though they continued to correspond their association necessarily became weaker as the American never returned to England. After the war, Priestley's position as a minister at the Birmingham New Meeting inhibited the revival of his American friendships, but during visits to London he became moderately familiar with John Adams, the first American minister to the Court of St. James's and an ardent advocate of American government. He also read widely on American affairs including works such as Adams's *Defence of the constitution of government of the United States*, David Ramsay's *History of the American Revolution*, and Jedediah Morse's *American geography*.

Reticence over the War of Independence only delayed his unpopularity. As a Unitarian minister Priestley was always open to public hostility yet unlike another of his friends, Theophilus Lindsey, he refused to take the course of discretion by remaining silent on matters of concern to Dissenters. He regularly defended Unitarianism in public controversy and when the Dissenters campaigned for repeal of the Test and Corporation Acts in 1787, 1789, and 1790, he entered the argument with forthright and even foolhardy language, making it explicitly clear that his ultimate objects were the disestablishment of the Church and the triumph of Unitarianism over orthodoxy. His intervention was personally disastrous. Among conservatives it aroused folk-memories of republicanism and regicide from the previous century, and when this was coupled to Priestley's known sympathy with the colonists during the American War and his admiration for the French Revolution after 1789 he became a figure of popular obloquy matched only by Thomas Paine. His reputation as a man of dangerous theological and political opinions led to a rapid deterioration in his position. He survived the Birmingham Riots of 1791 but became increasingly uneasy as a virulence of official as well as private hostility towards radicals increased during the years that followed. He had contemplated emigration as long ago as 1772, but had not taken the matter further. Now his wife was anxious to emigrate and he saw better prospects for his sons across the Atlantic; by 1794 he feared that if he did not depart voluntarily to the United States, like Thomas Muir and Thomas Fyssh Palmer, he would be forcibly transported to Botany Bay. Emigration was his only prudent course.

Priestley's hopes for happiness and security in the United States were only partially filled. Having chosen America in preference to France, he arrived in New York confident that he had discovered an asylum free from the bigotry and dangers of England. He rejected an offer of a professorship in Philadelphia in favour of settlement in a more distant area because living expenses would be lower and the remoteness would give him uninterrupted time for scientific experimentation and theological writing. Following a family advance party he settled in Northumberland, Pennsylvania, an area currently being developed for white settlement, and quickly found much to admire. In many ways, he told Lindsey, 'nothing can be more delightful, or more healthy, than this place', in spite of the considerable disadvantages of living in a frontier region where communications were poor, the food often dubious in quality, and congenial company limited.² Even so, he never settled down completely, and repeatedly declared his wish to leave the United States. His frequent unhappiness flowed from more than the discomforts of frontier life in a society different from that to which he was accustomed. Some of his difficulties were personal, for his private life was saddened by the death of his wife and various family problems. Also, he had emigrated not in search of the attractions of American society but through fear of the consequences if he did not, and at the advanced age of sixty one he was too old to adapt easily to a new and different environment. In common with many English immigrants he was reluctant to incorporate himself fully into the American community. Before leaving England he indicated his intention to take American citizenship; after arriving he refused naturalization and declared, 'I shall never feel otherwise than as an Englishman.'³

There can be no doubt that it was Priestley's reputation as a controversialist that prevented fulfilment of his desire to live as a 'peaceable stranger'.⁴ In many ways he got the worst of both worlds. His neighbours first assumed that as an Englishman he was hostile to the American Revolution, and he was unable to live down their suspicions. But he suffered far more from widespread disapproval of his sympathy for the French Revolution at a period in which sections of American popular opinion were increasingly sensitive to what they considered as the damaging implications of French principles for the security of the American system of government. And by a further twist of irony the initial attacks on Priestley were led by an Englishman, William Cobbett, who had preceded him as an immigrant and whose criticisms were directed as much against his alleged hostility to the English constitution as his sympathy for France.

As a public figure with a known reputation for contentious views, Priestley was dragged into the bitter party struggle between conservative Federalists who were becoming increasingly Anglophile, and liberal Democratic Repub-

licans who remained more sympathetic to France in spite of the excesses of its Revolution. Each party was persuaded that the soul of the Republic was at risk and convinced of the rectitude of their principles, and Priestley became a symbol in their warfare. For some time the party contest was conducted on acceptable terms, and Priestley commented favourably on the harmonious circumstances of the elections of 1796. Within two years it had become intense and Priestley's position became precarious. A Federalist Congress enacted a series of legislation known collectively as the Alien and Sedition Acts, the purpose of which was to repress Republican criticism and authorize the deportation of radical aliens. Priestley, against whom Cobbett continued to whip up hysteria, became a potential target for prosecution by virtue of his friendship with another English immigrant, the radical editor of the *Sunbury and Northumberland Gazette* and vigorous critic of the Federalist Government, Thomas Cooper. In 1799, Timothy Pickering, as Secretary of State, proposed to prosecute Priestley for assisting in the circulation of Cooper's publications. The President, John Adams, had a shrewder appreciation of Priestley's importance. He rejected Pickering's request, arguing cruelly that 'He is as weak as water, as unstable as Reuben or the wind. His influence is not an atom in the world.'⁵ In any case the danger to Priestley was coming to an end for the Federalists were about to be defeated in the elections of 1800. Under the Presidency of the republican, Thomas Jefferson, Priestley was no longer harassed and was permitted to live the remaining years of his life in peace.

It is difficult to account on political grounds alone for the hysterical and ill-informed abuse that almost forced Priestley out of the country. Though he clearly found the republicans more congenial and enjoyed a warm friendship with Thomas Jefferson after he returned to Philadelphia in 1797, his social principles and outlook were not greatly removed from that of the Federalists. Far from being an egalitarian or leveller, he and his friends were gentlemen in the social sense and, by the standards of Northumberland County, men of substance. He had crossed the Atlantic accompanied by two servants and a hundred pieces of baggage, had purchased a sizeable tract of land, constructed what for a time was the largest house in the district, and lived on a private income largely donated by his friends. In these and other respects he was distinctly superior to his immediate neighbours. Although he disapproved of much of the Federalists' policy, he consistently argued for the political importance of property and commerce—two matters of great concern to them—and during his visits to Philadelphia while it was temporarily the national capital he reestablished his acquaintance with Adams and developed friendship with President George Washington and many Congressmen.

Probably it was Priestley's reputation as a proselytizing Unitarian that had further annoyed orthodox conservatives and made them especially suscep-

tible to the influence of Cobbett and the extremists. His predicament was all the more ironic in view of his reasons for selecting Northumberland County as a residence. His family had chosen to settle in Pennsylvania for several reasons. Ample land had been available in the South but the region was unacceptable because of its continuing encouragement of slavery; to the north Rhode Island was ideologically acceptable but lacked sufficient land. Pennsylvania offered both advantages: there was plenty of accessible land on the banks of the Susquehanna and the state was free from the curse of slavery.⁶ Attractively for Priestley it also enjoyed a reputation for religious tolerance dating back to its foundation. From the earliest days it had encouraged entry by members of all Protestant sects and was greatly admired by English Dissenters for that reason. In this respect, however, Priestley may have been too sanguine. His warm and intimate friendship with Franklin (who had died in 1790 and was unable to advise him) perhaps misled him into supposing that all Pennsylvanians were as subtle and tolerant in religious matters as he was. In truth Pennsylvanians as individuals were no more tolerant of extreme theological heterodoxy than were many other Americans or Englishmen, and even less so when denominationalism became entangled in political conflicts as intense as those of the 1790s.

Just as in politics, Priestley suffered the worst of both worlds in religion. He found so many American unbelievers who not only despised but hated Christianity that he was sometimes close to despair.⁷ Nor did he gain much credit among believers for his critical reply to Thomas Paine's *Age of reason*, for Pennsylvanian opinion was resolutely orthodox in defending the divinity of Christ. The absence of tithes, confessional tests for office, or any other forms of legal discrimination were insufficient to guarantee insulation of the unorthodox from private hostility; as Alexis de Tocqueville pointed out forty years later, conformity in America was enforced by popular convention rather than legislative fiat. Yet as in England Priestley insisted on his duty and right to disseminate his own theological doctrines and refused to be silent. At first he was optimistic about the prospects for Unitarianism, and expected that his presence would contribute substantially to its advancement.⁸ Shortly after arriving, he planned to found a Unitarian society and later a college, but these hopes gradually evaporated. In Philadelphia he was eventually permitted to preach from the pulpit of Elhanan Winchester's Universalist Church, where he enjoyed a large and fashionable audience, including congressmen and Vice-President Adams, and was considered for appointment as chaplain to Congress. Unhappily his success was brief. For a time at least, Unitarianism flourished in Philadelphia on a minor scale but then declined. Whereas his first set of sermons had been well received, a second attracted only poor congregations. A group of English immigrants formed a lay society in 1798, but though it survived into the nineteenth century its existence was often exiguous.⁹ Nor was the position notably better in Northumberland. The cultural sophistication of Philadelphia that had toler-

ated Priestley's heterodoxy was largely absent from the frontier community. He gave one public sermon but was never invited to return, and his hopes of constructing a place of worship were unfulfilled. Instead, he held regular services at his son's house and the Unitarian group remained very small.¹⁰

Indeed, evidence drawn from other sources makes it clear that his evaluation of his position was too optimistic. His association with Adams had led Priestley to dedicate a volume of discourses to him and he was disappointed when Adams failed to reciprocate the compliment by subscribing to his proposal for a Church history. Fortunately, perhaps, he did not appreciate that Adams was critical of his arguments and considered his Unitarian philosophy to be no more than sophism. Priestley was under similar misapprehensions when considering that he would have been better off had he emigrated to New England instead of Pennsylvania. It is true that his friend James Freeman took the King's Chapel (the most fashionable church in Boston) to Unitarianism, but that was later. Before the Revolution Franklin had enquired on Priestley's behalf concerning the possibility of an appointment in New England. John Winthrop's reply was discouraging for he argued that his religious opinions were too unorthodox even for that most heterodox colony, Rhode Island.¹¹ The ultimate irony is that Priestley might have been more secure in a state his friends had rejected on other criteria. Virginia was both free of any legal discrimination on religious grounds by virtue of its enactment of Jefferson's Statute for Religious Freedom in 1786, and it was less absorbed in religious controversy than its northern neighbours. It was also a Republican state and home of his warmest friend among American politicians, Thomas Jefferson—a man with whom he enjoyed an amicable correspondence on educational and theological subjects.

As he learned to his discomfort, religion was as much entangled with political debate and policy as in England. William Cobbett, the English propagandist of the Federalist cause, quickly established the point in his brutally unfair commentary on Priestley's emigration: his Unitarianism was directly linked to his known sympathy for the French Revolution at a time when Francophilia and loyalty to 'true' American principles were thought by many to be incompatible. His combination of theological and political radicalism was cumulatively dangerous for anyone, as the prosecutions under the Sedition Act demonstrated. When added to his membership of a small and distinct group of English radical immigrants and popular antipathies towards the British that flowed from the Revolution, it became difficult for Priestley to avoid being drawn into public animosities. And when political insensitivity and imprudence were added to an already high and contentious profile, he was fortunate not to be expelled in the company of other radical aliens.

II

At first sight it may seem strange that Priestley recovered his benevolence towards the United States in the closing years of his life instead of lapsing into disillusioned bitterness. Jefferson's inauguration and the end of Federalist suspicions provide only a part of the explanation. To find another reason it is necessary to explore deeper in Priestley's philosophical system. For his intellectual edifice was sustained not only by its own internal logic but also by its continual and necessary contact with the operational world of social and political behaviour. It followed that success for the American system of government could be helpful to Priestley's system of public ethics and political analysis. The first stage in his evaluation of it was to observe it from a distance in the years before his emigration.

Though he was primarily a theologian and secondarily an experimental chemist, Priestley took a holistic view of the world. He was much concerned with political behaviour as an integral component of his philosophy, and his cosmology embraced secular as well as theological affairs. It followed that political systems functioned as expositions of the intentions of Divine Providence, and that their legitimacy was dependent on a theologically derived moral order. His political analysis was rooted in an interpretation of God's benevolent intentions which argued that if one could see everything in its long-term context it would be evident that even evils led eventually to a greater good.¹² The evidence of Divine intention could be found in several places: the Biblical texts (including their prophetic passages), in nature and in the record of human behaviour. Within this framework the past and present were integrally linked elements, and Priestley insisted that 'confused and perplexed as is the prospect which history exhibits to our view, it is in reality an exhibition of the ways of God... [that] leads us to the knowledge of his perfections and of his will'.¹³ It was a process that would continue in the context of current politics, for this was no more than an extension of past history, and the search for God's intentions would therefore continue beyond the present into the future.

Available evidence indicated that the contemporary condition of the world was vastly preferable to any previous period, but Priestley was not so naive as to argue that continuing progress was certain and inevitable. And if history could be considered mainly as providing examples of the sciences of morals and politics, it also demonstrated two propositions that were difficult to reconcile. It showed that though man enjoyed certain natural rights he was naturally selfish, overbearing and savage—and also that humanity and moderation were necessary in society. Similarly, vice could not be totally

eradicated, nor virtues absolutely acquired.¹⁴ Already one can see the embryonic contest between the self-directing commercial man and the older tradition of the republican citizen who places the welfare of the community above his own private interests.

There was one central value among the rights possessed by all men that was supreme if an understanding of Divine intentions was to be achieved. As Priestley told Franklin, that value was liberty, which in his view included science, truth, justice and peace, and everything valuable to human life.¹⁵ Liberty, of course, operated in several dimensions. One was civil liberty, which to Priestley meant that men should be undisturbed in as much of their natural rights and faculties as possible; it included the right to think and act for themselves and in particular the right of free speech and writing. Political liberty—the right to participate in government or, as Priestley put it, the right to share in the exercise of power over others,¹⁶ was desirable not only in itself but as a necessary defence for the enjoyment of civil liberty. Of the two branches of liberty he assigned primacy to the former, and whereas he believed it desirable to confine the exercise of political rights to those whom he considered fit to exercise them, he insisted on the universal eligibility for freedom of thought and expression. There was one additional form of liberty. As a Dissenter and severe critic of theological and ecclesiastical orthodoxy he was especially concerned for the preservation and advancement of religious liberty; by this he meant freedom of theological speculation in the search for truth, freedom of worship and organization, and emancipation from sectarian discrimination by confessional tests.

For several reasons Priestley needed an appropriate model to legitimate his arguments. Since human as well as physical behaviour was amenable to the operation of natural law, the experimental method he applied in his scientific work could be held to be suitable for social and political analysis. Also, there was an urgent need to update that traditional model of English radicalism, the ancient constitution of the Anglo-Saxons because it had worn thin in the eyes of the more intellectually-sophisticated radicals. Priestley himself had particular need to provide empirical justification for the Lockean world of individual responsibility, the social contract, and an aristocracy of talent, which he was preparing as the basis for modern society. Lastly, there was a double prudential need for a model: firstly, to provide instrumental validation for a set of normative values appropriate for modern society, and secondly to persuade doubters of the desirability of reform and reassure them of the continuing security of the state if such changes were to be implemented. By contrast with the rigour and exactitude of his scientific procedures, such a model would be diffuse in construction and uncertain in operation but these weaknesses can be ascribed to the nature of the available material and its episodic and anecdotal quality.

The time was opportune in the 1780s, for Priestley believed it was a period favourable to liberality of all kinds; in particular, the principles of religious and civil liberty were better understood than in the past and were becoming increasingly popular in all parts of Europe. Similarly, the science of government had kept pace with developments in the natural sciences, and the new governments founded at the end of the century were 'so many *new experiments*, of which political philosophers cannot fail to make the greatest use', and history demonstrated that certain things were safe that might have been dismissed as impossible on *a priori* grounds.¹⁷

When Priestley observed the American Revolution within the overarching context of Divine Will and human improvement and the particular framework of eighteenth century politics it took on more than a casual importance. The logic that demanded freedom of philosophical enquiry also demanded a demonstration of the viability of a liberal political regime at a critical stage in human development. For some time Priestley's hopes had lain with Great Britain, as had those of Voltaire and the Philosophers. Developments that took place after 1760—the Wilkes affair, the war with America, the failure of the parliamentary reform movement and the Dissenters' relief campaigns—disillusioned him and he began to look elsewhere. France, which had offered such promise in 1789, was ultimately disappointing. In 1799 Priestley still saw France as a model to be emulated, but later developments forced him to change his mind. As he said in the 1803 edition of his *Lectures on history and general policy*, the French revolution demonstrated that it was impossible to predict the outcome of changes in the structure of governments, for 'the system established at present is the very reverse of everything that was intended at the commencement of the Revolution.'¹⁸

America was the obvious substitute, because of its environmental advantages, its evident liberality, and its consanguinity with Britain. In Priestley's view the United States had rightly resisted the apparently authoritarian intentions of the British government, and the Revolution was an important step in fulfilling the plan of Divine providence. It had stimulated the movement that had led to the revolution in France and together the two revolutions had opened a new era in human history. Men were being liberated from their previous shackles and were moving from a position of degrading servitude towards the most exalted freedom. In previous generations, governments had operated as combinations of the few against the many; now, he insisted, the only prospect for America was a system of government based on the proposition of an equality of rights for all men.¹⁹

Admiration for America created an awkward problem in at least one respect, for it was necessary to find some means of reconciling approval of republicanism as a system of government with loyalty to a British constitution

that included the hereditary monarchy. Priestley's solution was always to argue that republicanism was appropriate overseas, but whatever its theoretical merits it was unnecessary in its pure form in England. Throughout his life he insisted that he was a loyal supporter of limited monarchy as it existed in his own country. As an admirer of the Glorious Revolution of 1688, which he saw as leading to a happiness unparalleled until the American Revolution, he saw the crown as an essential ingredient of a constitution he greatly respected.²⁰ It conduced to the preservation of liberty while contributing to the maintenance of social order, and his complaint was not directed against its central principles but against the manner in which he felt it was being perverted in his own day. His tolerance of monarchy in England was, however, an exception to his general principles. When comparisons were made between hereditary government on the one side and governments dependent on the will of the people on the other, he had no doubt. Republican governments were much preferable because they were more responsive and amenable to self-reform—even, he believed, capable of ridding themselves of slavery—whereas monarchical governments could only abolish their many abuses through violence.²¹ In any case, he believed that the distinction between republicanism and monarchy was misleading as far as the United States was concerned, for its ideological culture had grown directly out of the English political tradition. American leaders such as Franklin and Washington were not repudiating the traditions of Englishmen such as John Hampden and Algernon Sidney and the philosophers Bacon, Newton, and Locke; they were applying their principles in practice. And when the United States had gained its independence it had adopted forms of government similar to 'our excellent one' by adapting her civil institutions but rejecting her ecclesiastical establishment.²² Such views were subtle and pragmatic. They laid him open to excoriation by orthodox critics on both sides of the Atlantic but were essential to his interpretation of the American model and its relevance to Britain and his general theory.

It followed that Priestley greatly admired the American political system. Unlike many of his fellow radicals he was not greatly concerned with the evident prosperity and relative egalitarianism of American society, implicit though they were to his theoretical analysis. Nor did he consider the revolt against Britain as the most important element in the Revolution. More important in his view was the Revolution's function as creator of an independent form of government based on his own political principles. What he thought of the early state constitutions is unclear because much of his correspondence from the war years was either lost in the Birmingham riots or destroyed by Lindsey or his son, though he referred to them as 'imperfect and disjointed forms' in 1791; what is certain is that he applauded the Constitution drafted by the Philadelphia Convention in 1787, all the more so since it permitted modification should changes prove necessary.²³

He evidently discussed constitutionalism with Benjamin Franklin before the Revolution and John Adams while he was in London after it. Franklin, ever subtle in his reasoning, was prepared to approve the English constitution only if the preservation of American liberty could be preserved within the framework of the British empire. However, he was also a republican in the sense that he believed that direct political authority ought to rest in the sovereignty of the people, presumably on the basis of a universal male franchise such as that which was virtually achieved in the Pennsylvania constitution of 1776 and a unicameral legislature. Priestley never went as far as this, though he often applauded the concept of popular sovereignty in America. Instead, he agreed with Adams in believing in the desirability of a tripartite division of authority in a well balanced state; as he remarked, he was teased 'as being a *Trinitarian in politics*, though an *unitarian in religion*'.²³ By tripartite government Priestley probably meant here the classic three-part balanced division of executive, upper and lower house balanced so as to preserve liberty.

Two years after the outbreak of the French Revolution, and following the establishment of the national Assembly, Priestley became more sympathetic towards pure republics similar to the Pennsylvanian pattern in which authority rested solely with the legislature. He suggested to Adams that judgement should be suspended for the time being until an informed comparison between the French and American models could be made, but later decided in favour of the American one.²⁴

Within the legislature, however, Priestley seems to have been a majoritarian. He argued that if the majority of a nation understood their own interest, there was no reason why they should not enjoy the power of promoting it with as little obstruction as possible. In this respect he conceded that both the English and the American constitutions were defective since they permitted a veto by the House of Lords and the Senate over their respective lower houses. In keeping with his belief in the desirability of a well-balanced government, however, he was willing to permit the American President to exercise a temporary veto that could be overridden by a determined Congress.²⁵

In keeping with most English radicals Priestley did not intend recognition of citizens' rights to imply equality of property and influence for all men. He admired the American constitution whose political legitimacy derived from the sovereignty of the people and in that limited sense was republican but insisted that administration should be located in the hands of those best fitted to exercise it. He rejected the prevailing claim of an aristocracy controlling government by virtue of prescriptive right; this had led in pre-revolutionary Europe to the subordination of the general interests of mankind to the

self-centred passions and cunning of the few.²⁶ Instead he proposed that authority should be placed in the hands of what would be in effect an aristocracy of talent. Not that he intended that government should be given to a group of 'philosopher kings' who would be expected to superintend public affairs in accordance with their own personal appreciation of the general interest, any more than he would permit it to sink into the hands of the ill-informed masses. Rather, he was articulating the claim of the middle classes and especially the commercial classes to represent the true interest of the nation. Superficially he was postulating a class related structure of political conflict, but his real intentions were more subtle. He insisted that property or understanding, not classes or interest groups should be represented and the legislators should have close relations with their constituents so that they could represent their views accurately. They should also interpret their responsibilities as a trust to be exercised in the interest of the whole community.²⁷

The different components of government should not be populated by men 'differently enlightened'.²⁸ Such a system of representation was eminently practical, for public business was not so difficult that intelligent men could not prepare themselves easily to conduct it. Here the American example was especially pertinent for not only did it ensure that the rights of all men were equal, it also offered a pragmatic demonstration that authority could be safely located among a far wider proportion of the population than had been attempted in Europe. Moreover, in America the states elected their assemblies annually, the U.S. Senate was elected every two years, and even the President could be changed every four years, and no harm had ensued.²⁹ Here indeed was a government drawn from those ranks of society most fitted to administer it, and continuously subject to the judgement of the electorate.

There was one further element in American constitutionalism of profound importance to a Dissenter such as Priestley. Religious liberty was central to his intellectual and political position alike, and he particularly admired the equality with which the various sects were treated by American governments. During his last years in England he frequently referred to the example of an American model. In Pennsylvania there were many sects but no establishment, and in Massachusetts every citizen was required to contribute towards the maintenance of religion but permitted to specify the sect to which his moneys should be paid.³⁰ In reply to Spencer Madan's argument that no country could survive without an official set of religious tenets, he argued that the United States had no national religion. Moreover, 'everyman does *what is right in his own eyes*, and all persons without distinctions are admissible to every civil office; yet they see no cause to apprehend that ruin and destruction which Mr. Madan forebodes will be the consequence of the dissolution of our national establishment.'³¹ The Americans had dismantled the alliance between church and state that had degenerated into no more than 'a league

between the two parties in the state against the common liberties of the country', and no harm had ensued.³² There was indeed positive proof of this for, as Priestley pointed out, the absence of an ecclesiastical constitution had not been felt during the troubles in Massachusetts that culminated in Shay's rebellion.

Necessarily since he was still in England, these judgements as to the value of America as an appropriate model were made at secondhand. Furthermore, his discussion of the federal constitution was largely predictive and at most the consequence of very limited operational experience. By the beginning of the nineteenth century the Constitution had functioned for a decade, survived several crises and seen the peaceful transfer of power from one party to another. Also, Priestley had acquired direct personal experience of American society and politics, and the French revolution was fading as a competitive paradigm. If Priestley's libertarian theses were to enjoy evidential support they depended more than ever on the United States as an empirical model.

III

What was Priestley's judgement after almost ten years of life in the United States and several years of uncertainty? Observing it as an experiment, how well had the experiment succeeded, and how appropriate was it as an example to be emulated elsewhere, particularly in Britain? Priestley had no doubt. It possessed the best constitution that had yet been devised, since 'it was at that time the only one that had been drawn up with deliberation by persons appointed for that express purpose, and solemnly accepted by the nation. It was wholly founded on the *rights of man*, and the *sovereignty of the people*. In other words it was purely republican, every officer being chosen by the people, to serve them for a limited time, and afterwards accountable to them for their conduct.'³³ In the closing year of his life, he added a chapter on the U.S. Constitution to a new edition of his *Lectures on history and general policy*.³⁴ Much of what he said was descriptive, but he also included some commentary that can be added to remarks made in his private correspondence and other public writings to provide a helpful insight into his assessment. What he described was a Jeffersonian republic interpreted through the lens of an English philosophical radical.

Priestley clearly felt that his initial faith in the United States had been vindicated once Thomas Jefferson had been inaugurated as President in 1801.³⁵ The threats of the Alien and Sedition Acts were over and the intensity of party strife that characterized the election of 1800 were evaporating. Paradoxically, his traumatic experiences fortified his appreciation of American government for (unlike Britain where reaction was still triumphant) they were ended by the normal operation of the political process. Much was due to the excellence of the Constitution. The heart of the matter was the 'simplicity

of its object which is the security of each individual in the enjoyment of his natural rights without aiming at much positive advantage'. The individual citizen was free to deploy his own faculties without discriminatory impediments such as religious establishments, property qualifications for office, or titles of nobility; likewise he was entitled to the protection of jury trial, the writ of habeas corpus and freedom of the press, and in contrast to British practice in the 1790s, high treason was strictly defined. Moreover, Jefferson's administration was already implementing these principles. In his Inauguration Address of 4 March 1801 the incoming President had stressed many of the points so concerning to Priestley, in particular the preservation of personal rights, equality of treatment for all citizens, non-intervention in commerce, friendly relations with all nations but entangling alliances with none, national unity, limited government dependent on the will of the people, and respect for the rights of state governments.³⁶ During the early years of his presidency, Jefferson's policies conformed to his inaugural programme and were much applauded by Priestley. The President was abolishing internal federal taxes, discharging the national debt, reducing the standing Army, keeping the country out of war apart from a naval campaign against Tripolitanian pirates, and was transferring power to Congress wherever appropriate. Priestley also approved the purchase of Louisiana in 1803 as providing additional space for the rapidly increasing American population.³⁷

Several aspects of American government he undoubtedly deplored. From personal experience he argued that aliens should enjoy almost all the rights of full citizens except office-holding, argued against the administration of loyalty oaths as being redundant, and urged that Congressional power concerning sedition and aliens should be more precisely defined. Priestley's other reservations were more extensive in their application. Having experienced the consequences of acute party rivalry, and possessing typical eighteenth-century fears of anarchy and tyranny as the only alternatives, he failed to perceive that political parties were useful vehicles that could steer the country between the two; instead he argued that frequent changes of government would have a destabilizing effect. He also insisted on the need for government to be responsive to the will of the electorate and continued to argue that the Senate should not possess a veto over decisions of the more frequently elected House of Representatives. But perhaps above all, Priestley was critical of any constitutional feature that might permit an element of government to get out of control and thus replicate the authoritarian tendencies of the British government that had forced him to emigrate. In particular, he was afraid that the President and Senate operating together might use their treaty-making powers to gain control over commerce (a matter constitutionally assigned to Congress as a whole), or by concluding foreign treaties to involve the country in war. Echoing memories of England more than even recent America, he feared that a President might secure appointment for life through regular re-election and use his powers to fill public offices with men willing to serve his

ambitions rather than those best qualified to perform their duties. But the greatest danger of all would come from Congress mistaking or exceeding its authority. Without any check it might gradually assume all the powers of the English parliament which was uncontrolled by any defined constitution. It was wrong for them to be judges in their own cause, but even ordinary judges were so closely associated with those in power that they could be expected to favour the existing administration.³⁸

In certain respects Priestley's understanding of American constitutional law and custom were mistaken. He insisted (partially correctly in light of later practice) that Congress had exceeded its powers in enacting the Alien and Sedition Acts, but went on to applaud the Kentucky state legislature's resolution purporting to declare them void and of no force. In taking a view of American constitutional law that was later rejected he was in good company, for though he could not know it the resolution had been drafted by Jefferson and not, as he supposed, his friend and fellow English emigrant, Harry Toulmin.³⁹ His interpretation was in fact no more than one instance of a generally Jeffersonian view of the nation, according to which the union was one of states rather than individuals and the Constitution was one of strictly delegated authority by virtue of which Congress could exercise only those powers especially granted to it by the states. Likewise, the remedy to the problem of biased judges and unconstitutional actions was the establishment of a special court consisting of delegates from each state whose duty would be to hear charges laid by the state legislatures against Congress, the President, or any other persons.⁴⁰

Priestley's Jeffersonianism reappeared many times as he discussed the Constitution. Each citizen could enjoy protection from violence and injustice, whether the threat came from abroad or from his fellow citizens, and should there be any abuse of power the people could correct it. Yet these provisions were only two features of it. For what he considered was necessary (and evident, so he believed, in it) was a political system devised to stimulate and encourage the self-directing, self-promoting, and self-responsible independent citizen. The interest of the community as a whole was best promoted through an aggregate of the individual goods of each of its citizens, if only because the citizen could be presumed to know his interests far better than any government could: its advancement could be achieved most effectively not by active programmatics but by protecting each citizen's natural rights and creating a cultural environment within which he could pursue his own advantage. Priestley conceded that the government, representing the people as a community had certain necessary duties to perform. He approved of harnessing the country's powers to provide elementary education and public utilities such as roads, bridges, and canals, but beyond these limited responsibilities he believed in a programme of benign non-intervention. He welcomed the absence of any national religious establishment and saw any form of state

credo or philosophy as an effective curb on any form of improvement since it would enable the bigotry of traditionalists to frustrate innovation. He also argued that government should not formulate policies that would favour any one class of citizens over another. In particular, he advised against any policy that would favour merchants over farmers, as the Federalists had appeared to do. Instead, he believed that all citizens should engage equally in economic activity and at their own expense and risk—free from artificial restriction but also unprotected against competition from any source, whether home or foreign.

What Priestley was doing was translating an eighteenth-century doctrine of natural rights into a form appropriate for the modern world. The Jeffersonian paradigm of a virtuous citizen was the small yeoman farmer functioning within a predominantly agrarian republic. Priestley extended the analysis and its consequent system of political ethics to include commercial interests, thus making it more relevant to British needs in an increasingly industrial world: in effect he was preparing the way for a new socio-political order represented by utilitarianism and the Manchester school of economics. His atomistic individualism had its limits however. Rational Christianity and natural rights philosophy alike implied egalitarianism, yet Priestley did not wish to proceed that far. Where some middle class radicals on both sides of the Atlantic argued in favour of a universal male franchise, he still believed that this would pose danger to the social stability so essential in his view to a harmonious and developing country. He feared the brutality and licentiousness of the lower classes and disapproved of the efforts of the English Corresponding Societies to promote working class interests during the 1790s.⁴¹

His ideal republic was one of equality of opportunity, not social position. One of the features of American government that attracted him most was the manner in which political control was placed firmly in the hands of the middle classes. By Priestley's criteria there was no true aristocracy, though he feared the emergence of presidents holding office for life. More importantly, he believed that the American electoral system was devised in such a way as to ensure that power remained with those most fitted to exercise it—the presumptively middle class aristocracy of talent. In a tortuous discussion of property qualifications as a requirement for office holding, he applauded both the absence of any formal property qualifications and an elective system that he believed would ensure that only the possessors of property that is, those who were better qualified to judge on public affairs would be appointed to office. At the highest level the procedure for electing the president through means of an electoral college would effectively filter the judgement of the citizenry at large. He was uneasy about the senators' six-year terms of office but saw some advantage in having men of greater age and experience who were not directly chosen by the common people but continued in office for a considerable time and acted as a check on a lower house that was elected for

two years. Such a system of election had other advantages in that it permitted legislation to be considered by a second set of men who nevertheless owed their authority to the people. Furthermore the annexation of political privilege to the ownership of property would stimulate industry, an activity that Priestley believed should be encouraged in every country.

The American constitutional system as he understood it possessed many attractions from Priestley's point of view. It was designed to open government to the energetic and public-spirited sections of the community who could be presumed to be best fitted to appreciate its true interests. The residual aristocracy at the upper end (he evidently excluded Jefferson from this category) and the poor at the lower were to be excluded from power, the one because of its self-centredness and the other because of its incapacity, locating authority in a talented middle class elite who would be as much concerned with open economic development as the protection of the civil rights of citizens. By comparison with the traditional ideology of English—and for that matter American—radicalism, this represented a substantial advance, but even at this stage it was only in mid-career.

If Priestley's view on commercialism and the open economy implied self-seeking competitive individualism, his political principles were still shaped in part by the fading influence of an older republican tradition. The civic humanism of the eighteenth century was evident in his insistence that government should be regarded as a trust and the implication that power should be located, in a public-spirited section of society. His belief that middle class governors were expected to fulfil their responsibilities according to a disinterested concern for the public welfare was demonstrated by his views on the level of official salaries. He would have preferred office holders to have served without payment on the grounds that honour and power ought to be sufficient reward of themselves, and any country ought to be able to supply sufficient persons of independent means to serve their country. Failing this he grudgingly conceded that American public salaries were sufficiently low to deter men from seeking appointments through greed. There were also elements in his arguments of the Dissenters' morally responsible man and their desire to be liberated from religious restrictions imposed by self-interested orthodox believers. Lastly, in Priestley's concern that government should be continuously responsible to the nation though the medium of a representative legislature, and his constant fear of a corrupt and overmighty executive, one can see the continuing thread of the commonwealth tradition that had originated from the conflict between court and country in the seventeenth century.

In spite of the accusation of his critics Priestley was always an advocate of gradual reform. Late in life he told his friend Lindsey that though he preferred the American constitution to the British he had no wish to introduce it to

England by revolution.⁴² The same gradualist process was taking place in the development of his social and political thought, and the United States (its Revolution and its government) contributed materially to its modernization. The central premises of his position were based on a notion of rights, and much of his argumentation was theoretical in its justification. However, the set of normative values that flowed from it were insufficient by themselves. They needed instrumental validation by the test of empirical experience; in other words Priestley needed a model to justify theoretical arguments concerning political morality. Some of his radical contemporaries went back to the doctrine of the ancient constitution, others to the seventeenth-century commonwealth. Though Priestley stood clearly in this tradition—if only because of his status as a Dissenter—he had moved beyond the need for traditional historical models, and just as he searched for the evidence of Christianity and conducted scientific experiments so he needed contemporary examples to sustain his political analysis. The American political system provided such a paradigm at an opportune moment, for it was an attractive substitute for the English constitution and the French Revolution each of which had in its own ways failed to sustain Priestley's theoretical position. It offered many attractions, not least of which was that it could be seen as functioning within the English tradition and thus being compatible with the British constitution. In particular, it provided a system of republican government in which authority, practically as well as theoretically, flowed from the people. It provided ample protection for the civil liberty of its citizens while also permitting them to share in the processes of government. By its neutrality among the competing interests of its citizens, notably the contest between agriculture and commerce (which Priestley saw as complementary rather than opposed) and its confessional impartiality, it sustained social stability while encouraging simultaneous expansion. It also legitimated the liberal individualism of a property-seeking community, and justified economic productivity as a morally desirable social activity.

In these respects the American Revolution contributed usefully to the formulation of a modern system of political ethics. What neither it nor Priestley did, however, was to leap abruptly to a definition of virtue based entirely on economic activity.⁴³ Priestley argued vigorously the case for a system open to talent and in particular to the ambitious and successful middle classes as opposed to the form of traditional society where power was located in the hands of a privileged and unrepresentative landed aristocracy. However, economic man did not replace the virtuous citizen who conducted his public life in accordance with the common good as the central criterion for defining virtue; to have done so would have led not to the world of Locke but Hobbes. Rather, Priestley's analysis of the American constitution during the Presidency of Thomas Jefferson makes it clear that even in a society where authority was to be placed in the hands of economic individualists, the new governors were expected and required to exercise their authority in the

common interest and in accordance with higher moral principles. Economic activity had become morally acceptable and within the market place self-centred competitiveness had become acceptable. Within government, however, the older virtues remained. Economic productivity and hard work had joined, not replaced, citizenship and concern for the public interest as the criteria of public virtue. And within Priestley's lifetime, Jefferson's presidency appeared to suggest that this combination of civil and economic virtue was practicable.

¹ *The theological and miscellaneous works of Joseph Priestley*, ed. J. T. Rutt, 25 vols. (London, 1817-31), XXII, 484-85, 496.

² Joseph Priestley (hereafter JP) to Theophilus Lindsey (hereafter TL), 14 Sept. 1794, Dr Williams's Library, London, MS.12.13. For a detailed account of his period in America, see Caroline Robbins, 'Honest heretic: Joseph Priestley in America, 1794-1804', *Proc. Am. Phil. Soc.* CVI (1962), 60-76.

³ JP to John Wilkinson, n.d., Correspondence of Joseph Priestley, Warrington Public Library; JP to TL 12 July 1795, DWL, 12:13.

⁴ JP to John Adams, [7 Jan. 1795], Adams Family Papers, microfilm edition, reel 379, Massachusetts Historical Society, Boston.

⁵ James Morton Smith, *Freedom's feters* (Ithaca, N.Y., 1966), 174.

⁶ Mary Cathryne Park, 'Joseph Priestley and the problem of pantisocracy', *Proceedings of the Delaware County Institute of Science*, XI (1947), 19-21.

⁷ JP to [?] William Belsham, 27 Oct. 1795, DWL, 24:86(2).

⁸ JP to Benjamin Vaughan, 6 May 1795, Letters to Various Persons BP 931f21 American Philosophical Society, Philadelphia; JP to TL, 24 June and 5 July 1794, DWL, 12:13.

⁹ JP to TL, 8 Apr. 1796, DWL, 12:13; *Memoirs of Joseph Priestley* (London, 1806), 193-94; Earl Morse Wilbur, *A history of Unitarianism in Transylvania, England and America* (Cambridge, Mass., 1952), 396-97; JP to TL, 16 Dec. 1800, DWL, 12:13 and 1 Mar. 1803, *Works*, II, 506.

¹⁰ JP to TL, 14 Sept. and 20 Dec., 1794, DWL, 12:13; JP to James Freeman, 20 Feb. 1800, BMS1569.7 (529), Houghton Library, Harvard University.

¹¹ JP to Vaughan, 19 Apr. 1798, Benjamin Vaughan Papers, BV 46p, American Philosophical Society; Marginalia in John Adams's copy of JP's *History of early opinions concerning Jesus Christ, compiled from original writers*, in Boston Public Library; [John Winthrop] to Benjamin Franklin, 4 Mar. 1773, Benjamin Franklin papers, XLIV, 8, American Philosophical Society.

¹² Joseph Priestley, *Lectures on history and general policy*, new edn. (London, 1826), 55.

¹³ *Ibid.*, 549-550.

¹⁴ *Ibid.*, 63, 449.

¹⁵ JP to Franklin, 14 Feb. 1769, *The papers of Benjamin Franklin*, ed. Leonard W. Labaree et al., 21 vols. to date (New Haven, Conn., 1959-), XVI, 42.

¹⁶ *Lectures* (1826), 298-99, 305-06.

¹⁷ *Ibid.*, 40.

¹⁸ *Ibid.*, 39n.

¹⁹ *Letters to the right honourable Edmund Burke* (Birmingham, 1791), 140-41; *An appeal to the public on the subject of the riots in Birmingham* (Dublin, 1792), 100; *Lectures on history and general policy* (Birmingham, 1788), 317.

²⁰ *Familiar letters addressed to the inhabitants of Birmingham*, 2nd edn. (Birmingham, 1790, 12n; *Lectures* (1826), 286-87.

²¹ 'Reply to the Republican Natives', in Edgar Fahs Smith, *Priestley in America 1794-1804* (Philadelphia, 1920), 39.

- ²² *Discourse to the supporters of the New College at Hackney* (London, 1791), 5; *Familiar letters*, 74.
- ²³ *Familiar letters*, 89.
- ²⁴ JP to Adams, 20 Dec. 1791, Adams Family Papers, reel 375.
- ²⁵ *Political dialogue* (London, 1791), 18-19; *Lectures* (1826), 309.
- ²⁶ *Letters to Burke*, 141.
- ²⁷ *Lectures* (1826), 327-29.
- ²⁸ *Political dialogue*, 18-19.
- ²⁹ *Ibid.*, 11.
- ³⁰ *Lectures* (1788), 449-451.
- ³¹ *Familiar letters*, 73-74.
- ³² *Letters to Burke*, 208.
- ³³ *Letters to the inhabitants of Northumberland* (Northumberland, Pa., 1799), II, 8-9, 14.
- ³⁴ Unless specified otherwise the analysis that follows is based on the Appendix, 571-584.
- ³⁵ JP to TL, 11 July 1803, DWL, 12:13.
- ³⁶ Adrienne Koch, ed. *The American enlightenment* (New York, 1965), 404-05.
- ³⁷ JP to TL, 19 Dec. 1801, Joseph Priestley Papers Bp.931f51, American Philosophical Society; JP to TL, 1 Jan. and 6 Aug. 1803, DWL, 12:13.
- ³⁸ *Northumberland letters*, 11-12.
- ³⁹ JP to TL, 23 Dec. 1798, DWL, 12:13.
- ⁴⁰ *Northumberland letters*, 11-12.
- ⁴¹ *Works*, XIX, 402; JP to TL, 5 July 1794, DWL, 12:13.
- ⁴² JP to TL, 11 July 1803, DWL, 12:13.
- ⁴³ Here I disagree with Isaac Kramnick's analysis, 'Republican revisionism revisited', *American Historical Review*, LXXXVII (June 1982), 662.

PATERNALISTIC LIBERALISM JOSEPH PRIESTLEY ON RANK AND INEQUALITY

Margaret Canovan

I

The late eighteenth century is often thought of as the time when the British ruling class was challenged by a new industrial middle class armed with a new social ideology. The long dominance of the landed aristocracy had been bolstered by the traditional vision of a society graded into a hierarchy of divinely ordained ranks. This order of ranks entailed mutual obligations of protection and obedience between higher and lower, and embodied a paternalist ideal of personal relations between the generous patron and his grateful client.

In the latter years of the eighteenth century (so the common account runs) this traditional conservative view of social structure began to give way before the new liberal ideology of the industrial middle classes. Men were no longer believed to be destined by God for particular ranks in society, but were born equal in their natural rights, to find their own place by enterprise and competition. The ideal was no longer one of paternalistic dependence and personal bonds between superior and inferior, but of a society of independent self-made men beholden to nothing but their own efforts and the luck of the market. According to Marx what the bourgeoisie did was to put an end to all 'patriarchal, idyllic relations, and leave no other nexus between man and man than naked self-interest and callous cash payment'.¹

This view has been very influential, and in its broad outlines it has considerable plausibility. Historical actuality, however, is rarely as neat and tidy as grand sociological theories suggest, and alongside these classic opposites, 'paternalism' and 'liberalism', one can find many views of society that are idiosyncratic hybrids. A case in point is the social outlook of Dr Joseph Priestley (1733-1804). Not surprisingly, Priestley is often regarded as one of the pioneers of middle-class liberalism in England. No one could have been more self-consciously in favour of progress, enlightenment and freedom than this pioneer scientist, this friend of entrepreneurs, this propagator of notoriously advanced ideas in religion and in politics. We might, therefore, expect that his views on social inequality would be a classic example of what Harold Perkin has called 'the entrepreneurial ideal'.²

Now, up to a point Priestley certainly was classically liberal in his view of the social structure, for he questioned the traditional social hierarchy and favoured a much more mobile system. As we shall see, however, he also

preached a paternalistic ideal of personal relations between rich and poor that seems strangely at odds with 'bourgeois ideology'. From a sociological point of view his outlook seems an incongruous mixture of advanced and backward-looking themes. Priestley's own point of view, however, was not sociological but religious. Just as his religious beliefs allowed him to couple those strange bedfellows, experimental science and biblical prophecy, so they also enabled him to bind together apparently contradictory social ideals into what was (from his point of view) a coherent and convincing unity.

II

Priestley was in some ways rather well-qualified to reflect upon the social structure of late eighteenth-century England. His own background was modestly middling,³ while his close associates in later life were among the successful entrepreneurs of the Industrial Revolution, Josiah Wedgwood, Matthew Boulton, James Watt and others. He had an opportunity to study the aristocracy at close quarters during the seven years he spent under Lord Shelburne's patronage, and at the other end of the social scale he saw at first hand the life of the new industrial workers in Birmingham. The aspect of English society with which he was least familiar during his adult life was perhaps the traditional Tory hierarchy of the countryside, the village ruled patriarchally by squire and parson: but this makes it all the more significant that some of his views on inequality could have come straight from the sermons of just such a parson.

His starting point in all his reflections was his belief in a rational and benevolent deity whose gradually-evolving creation was designed for the good of all men. Reflecting upon his experience of the various ranks of society in the light of this belief, Priestley argued that certain kinds of social inequality were beneficial to all concerned, and were therefore natural and right, whereas other kinds were harmful, unnatural and out of date. The most obvious form of unnatural and useless social distinction seemed to him the position of the nobility. The Dissenting, trading middle classes had never had much time for nobles, either despising them as boorish Tory backwoodsmen or distrusting them as corrupt Court grandees. Although Priestley overcame this traditional suspicion to the extent of accepting the patronage of the Earl of Shelburne, the eventual result of his association with aristocrats was that he reaffirmed the traditional judgements from his own experience.

In his *Memoirs*, he denied that he had ever envied the lot of the nobles with whom he had lived at close quarters: the idle rich, he said, were not even blessed with happiness, still less with virtue. Rank and luxury stifled unselfishness and 'true politeness', and the nobles, suffering from the effects of their faulty upbringing, were to be pitied rather than envied. He was prepared to admit that there were occasional exceptions to this: he even declared

(with some unknown model aristocrat in mind) that when a nobleman could manage to transcend his environment he might become positively 'godlike'—a surprising encomium. But this, said Priestley, was highly unlikely, considering the way in which noble children were brought up.⁴

While he was with Lord Shelburne he published a book of *Miscellaneous observations relating to education* with a special section on the education of 'Persons of Rank'.⁵ Here he stressed the moral disadvantages of aristocracy. How could a child avoid an exaggerated idea of his own importance when he was surrounded by tutors and servants at his beck and call, trying to curry favour with him and afraid to punish him when he did wrong? When, later in life, Priestley openly recommended the abolition of aristocracy, he declared that this would be a blessing not only to the rest of society but to the nobles themselves. They invariably suffered in their moral character from being surrounded by inferiors (the most morally degenerate of all, of course, being royalty), and would be much better off without the dubious privileges of flattery and opulence:

...never will men appear to proper advantage, never will they be in a situation in which they will have sufficient motives to exert themselves, in order to acquire useful and laudable qualities, and in which all improper propensities will be repressed, but in a state of perfect equality; when every advantage will be accessible to every man alike, and where no man can expect any preference except from superior virtue or superior ability, employed for the public good.⁶

While experience of the aristocracy at close quarters made Priestley regard them as a group to be rescued from moral corruption, he had always taken a stringent view of their obligations to the rest of society. Starting from the principle that privileges for the few could only be justified if they contributed to the public good, he felt it incumbent upon the nobles to justify their existence by good works, and, not surprisingly, he suggested more than once that one appropriate object of noble patronage was scientific research.⁷

As he got older, he became even more outspoken. While he was actually under Lord Shelburne's patronage he dedicated one of his books⁸ to the Earl's son, Lord Fitzmaurice, and prefixed to it an extraordinary dedication. The usual practice on these occasions was to engage in shameless flattery, but Priestley took a tone with the young nobleman which was so independent as to be almost insolent. He delivered a lecture on the duties attached to high rank, warning him that only their performance could justify or even ensure its continuance. Special wisdom and virtue were, he said, expected of those 'whom their fellow-citizens, naturally their equals, are, by the constitution of their country, made to look to as their superiors. It is a debt due for that distinction.' What was more Priestley, went on to threaten that failure to pay

At the same time that we justly think that every man is a great and exalted being (that is, capable of becoming such); we consider all distinctions among men as temporary, calculated for the ultimate benefit of all; and consequently, that it is for the interest of the lower orders as well as of the highest that such a subordination should subsist.¹⁷

The implication was that any condition that was manifestly not in the interest of those in it could not be justified. In particular, Christianity established a need 'to give every individual of the human race equal, or at least sufficient, advantages for improving his nature, and preparing for a future state'. Priestley argued that while distinctions between poor and rich, master and servant, did not necessarily stop anyone improving their nature, slavery did.

The right to 'improve one's nature' is a more or less liberal criterion, according to the moral and psychological assumptions that lie behind it. After all, Southern clergy in the United States who endorsed the laws for bidding negro slaves to learn to read maintained that even the ability to read the Bible was not necessary to man's chief end. But Priestley accepted the teleological psychology of Hartley, according to which true piety is the summit of a long process of natural human development that cannot be short-circuited by 'conversion'.

His reason for thinking slavery an unsuitable condition for a human being was that even if the incidental cruelties of the masters could be eliminated, it would still be difficult for a slave to develop his nature, and in so far as he succeeded he would only become more unhappy. Servitude is not cruel to animals, because they live entirely in the present. But Priestley had learned from Hartley that man has a specifically human attribute, 'comprehension of mind', or the ability to take a longer and wider view of one's circumstances. It is through the development of this capacity that men rise from their infantile concentration upon immediate sensations to a mature appreciation of intellectual, moral and religious values. In so far as a slave followed this natural progression, he would be deprived even of momentary enjoyments. To be happy at all, he must take refuge in a frivolity that reduces him to the level of an animal:

The nature and constitution of man... renders him an improper object of servitude. He was made for a better condition, being naturally qualified to enjoy and adorn it, and it is acting contrary to nature to degrade his condition below the standard of his powers.¹⁸

Priestley was well aware that his attitude to slavery was an advance upon the Bible, in which it was easy for vested interests to find justifications for the institution.¹⁹ This did not disturb him, however, since although he believed that truth and right were immutable, he thought that they had not been

revealed all at once, and that it was 'the intention of Divine Providence, that everything should be brought to perfection by degrees'.²⁰ Consequently he felt that he was working with God in trying to improve the condition of mankind.

III

We have seen, then, that Priestley's principle of moral improvement for all men ruled out two kinds of hereditary distinctions, slavery on the one hand and aristocracy on the other. But what of the distinctions between rich and poor, master and servant? Were they not also condemned by this principle? Priestley thought not, provided that certain conditions were met.

In trying to understand his position, it is important to avoid attributing to him views he did not hold. Priestley was not a Benthamite, his social vision dominated by the iron laws of political economy; neither (unlike Locke²¹ and other writers) did he take the view that the lower orders were the failures of society, and that poverty was the result of idleness. He was not a Calvinist, dividing mankind into the elect and the damned and tempted to interpret riches as an index of divine favour.²² On the contrary, he was a Christian Optimist, committed to the view that all institutions that are natural and right must work to the good of all men, not just an elite minority. The difficult task he set himself was therefore to show that inequalities of wealth were justified because and in so far as they actually promoted the moral progress of both rich and poor alike.

It was in his last years, in America, that he gave the clearest explanation of his position. In a sermon delivered at Philadelphia, asking charity for poor immigrants, he argued that such charity was:

...agreeable to the excellent plan of Divine Providence, which has wisely appointed this life to be a state of discipline to us all, and which, with equal wisdom, makes the greatest use of men, as the instruments of this discipline for the improvement of men. For this reason it is that some are rich and others poor; some knowing and others ignorant; some powerful and others weak. Not that the Supreme Being, our common parent, shews any partiality to one more than another... His design evidently is, that these advantages should be more equally distributed by the parties themselves, since that will have a better effect than if it had been done immediately by himself.

The rich, therefore, reflecting on the wise institutions of Providence, should not suppose that they have an absolute exclusive right to their superfluity... Our common parent had far other and more extensive views in appointing this inequality. It was no less than to bind all the parts of this great whole, more strictly together, to make the one more

dependent upon the other, and...give scope to the increase of generosity on one side, of gratitude on the other, and of benevolence on both...²³

What this sermon strikingly demonstrates is that in spite of his hostility to fixed hereditary ranks, Priestley's view of social structure was intensely paternalistic, laying great stress on personal bonds between lower and higher orders. He was emphatic that worldly goods were a trust held by the better-off for the benefit of the poor, and he deplored the tendency of many to increase their expenditure instead of their charity as they grew richer.²⁴ Interestingly enough, however, this traditionalist insistence on paternalistic charity and the personal relationship between benefactor and recipient went hand in hand with a characteristically liberal enthusiasm for social mobility and self-help. His preference was for practical charity which would rouse ambition in the lower classes and help them to rise, for he did not feel that anyone was obliged to remain in the station to which Providence had called him if he could honestly rise out of it.

Priestley's account of the mutual benefits rich and poor derive from their inequality may sound complacent, but he did not pretend that social conditions in England actually conformed to this idyllic picture. He was well aware, for example, that the conditions in which the urban working class of his day lived did not do much to improve their natures. In his *Miscellaneous observations relating to education* he described manufactures as 'unspeakably less desirable than agriculture', and went on:

The confinement and hard labour of the working manufacturers,²⁵ together with the bad air they often breathe,²⁶ are very destructive. They rear few children, they soon become diseased and infirm, and die long before the term of nature.²⁷

In spite of his Dissenting background, he did not take a Puritanical attitude towards the leisure of the lower classes. When a correspondent to his *Theological Repository* proposed the abolition of the Sabbath on the grounds that it left the people idle and encouraged them to get drunk, he warmly opposed this, maintaining that:

... in this country the manufacturers labour to excess, and...it would be very desirable, would contribute to lengthen their lives and make their lives much happier, if their labours could be moderated... Like our horses, their lives are shortened, and made wretched by fatigue.²⁸

Apart from this pious hope, Priestley did not offer any concrete recommendations in this area. He was readier with proposals for reform in another aspect of social policy, poor relief. Like many other commentators at the time, he was highly critical of the Old Poor Law system.²⁹ What is noticeable,

however, is that his criticisms were moral rather than economic, and stemmed as much from traditional paternalism as from progressive liberalism. He had two objections, both following from his predominant concern for moral improvement. In the first place, he argued that the legal obligation upon the rich to pay the poor rate discouraged private charity. As a result, instead of a personal and morally-improving relationship between helper and helped there was only the cold bond of the law.³⁰ The Poor Law was therefore objectionable on paternalistic grounds. A second objection, however, was that it was also a disincentive to self-improvement and social mobility. The indiscriminate right to poor relief encouraged pauperism and discouraged initiative and self-help.³¹ Priestley saw a way forward in the extension of the Friendly Societies which were springing up amongst the working classes, providing insurance against sickness and old age in return for weekly contributions.³²

Since these societies lessened the charge on the rates and fostered a spirit of frugality among the lower orders, they were extremely popular with the respectable classes at the time, and many writers suggested that all workmen should be compelled to contribute to a general, government-established Friendly Society—an early precursor of National Insurance. Individual employers sometimes set up their own organizations, and it was in order to recommend a scheme of this kind proposed by his brother-in-law, the iron-master John Wilkinson,³³ that Priestley published in 1787 *An account of a society for encouraging the industrious poor*.

In the introduction to this pamphlet he discussed the problem of pauperism in general,³⁴ which he stated concisely:

The poor, certain in all events of a maintenance, and having no prospect of ever gaining anything more, have no sufficient motive to exert themselves.

As a result, when they worked at all they did so only for as many days as would support them for the rest of the week, and spent the rest of their time in an alehouse. Unlike some of his contemporaries, Priestley did not attribute this behaviour to innate idleness, but to the unnatural situation of the poor Englishman subject to the Poor Law. His point was that this deprived the working man of both hope and fear. He had no prospect of bettering himself if he did exercise forethought and responsibility: while, since the parish would always support him, there was no penalty if he did not. As in the case of slavery, poverty under these conditions was, in Priestley's words, contrary to 'the plain path of nature and Providence', in which men must think ahead and act responsibly.

This judgment should not be read as a piece of Malthusian callousness, for 'Nature' to Priestley did not mean 'natural checks' but the natural develop-

ment of men's moral and intellectual powers, plus natural relationships between rich and poor. Harold Perkin interprets the campaign against the Old Poor Law as the deliberate dismantling of the traditional system of paternal protection of the lower orders by a newly-commercial upper class who had 'sold their souls to economic development'³⁵ and were no longer willing to accept paternal responsibilities (though they still imposed paternal discipline). But while there is no doubt much truth in this analysis, it does not really cover Priestley's attitude. Although he recommended the abolition of the Poor Laws, he did not envisage either leaving the poor to starve or herding them into Utilitarian Bastilles. He may have been naive, but he was certainly sincere in proposing that the poor should be aided where necessary on a personal, *ad hoc* and thoroughly paternalist basis:

In this natural state of things the humanity of individuals will easily, and with pleasure, step into the relief of those wants which could not be foreseen, and both the rich and poor will be almost equally comfortable and happy.

As usual, if one side of Priestley's thought was paternalistic, it was balanced by another stressing social mobility. Society, he maintained, must make it 'the visible interest of every man to be industrious, holding out to every man a certain prospect of bettering his condition and that of his family in proportion to his industry... for it is very much through despair of doing this that the generality of our labouring poor are so indifferent about futurity'. This was to be done by providing an investment scheme for the small savings of the poor, more stable than the Friendly Societies, whose funds were all too liable to embezzlement. Priestley hoped that eventually such a savings scheme would be established by law, and that the poor would thereby be obliged to provide for themselves³⁶—an example of his willingness to contemplate state intervention to bring about reform.

In his Poor Law pamphlet Priestley also recommended a public provision for teaching the poor to read and write, since this would excite in them a spirit of industry and make them more independent. Elsewhere his reasons for recommending popular education were less narrowly utilitarian. In his *Lectures on History*, for example, he praised the Scottish system of parish schools, and remarked that the increasing division of labour made education more and more necessary, for 'men would be little more than machines without some knowledge of letters, and an opportunity to improve themselves by reading'.³⁷ He considered that the Church of England had evaded its responsibility by failing to educate the poor, and suggested in 1790 that some of its funds should be diverted for this purpose.³⁸

He was himself a whole-hearted supporter of Sunday Schools, and there survives in manuscript³⁹ a sermon on 'The Duty of the Rich to the Poor' which

he preached in November 1789 in aid of the New Meeting Sunday Schools in Birmingham. Here he reiterated his belief that rich and poor were parts of one great whole, and that the poor, having the same natural abilities as the rich, ought to have the opportunity of improving themselves. While recognising that Sunday Schools were hardly adequate for this purpose, he supported them as better than nothing:

... tho' it were to be wished that something more could be done for the poor than can be done in any Sunday Schools, let them not be neglected, but let the most be made of them. They may prepare the way for something better hereafter.

IV

Looking back at Priestley, his social ideas seem a curious mixture. We can certainly find a lot of the 'bourgeois liberal ideology' of enterprise and self-help in his writings, but it is by no means unmixed. In spite of his attack on feudal survivals like the aristocracy, it was no part of Priestley's intention to put an end to 'patriarchal, idyllic relations' and to leave 'no other nexus between man and man than naked self-interest and callous cash payment'. Furthermore, his stress on personal dependence was reinforced by what may seem a surprising willingness to consider a paternal role for the state. As we have seen, he proposed compulsory social insurance for the lower orders, evidently not feeling that this contravened the principles of civil liberty he had defended so eloquently elsewhere, and he revealed his paternalist assumptions even more decisively in the way he reacted, late in life, to reports of a contemporary social experiment in Bavaria. Count Rumford had (according to his account) eliminated begging there by a full scale piece of social planning, forcing the beggars to attend workhouses, feeding them, providing work for them and disposing of their products.⁴⁰ The whole scheme was run on military lines, and was possible only because Rumford had behind him the centralized despotism of the Elector: but when Priestley read about it, he reacted (as over a hundred years later, Lloyd George's generation of Liberals reacted to reports of Bismarck's authoritarian social reforms in Germany) not with liberal horror but with paternalist enthusiasm. He wrote to his friend Lindsey recommending Rumford's book, and adding,

We see by that... that the world may be in a manner renovated by good government.⁴¹

How can we account for this ideological hybrid, paternalistic liberalism? Was it simply that Priestley, so radical and progressive in other ways, had not thought very hard about his position, and was merely repeating traditional clichés when he recommended paternal relations between rich and poor?

From a sociological point of view, his position seems hopelessly unstable, riddled with weaknesses too obvious to be ignored. For example, how could social mobility, with its implications of self-help and sturdy independence, be squared with the dependence and humility among the lower orders that paternalist charity demanded? It is surely significant that when Priestley reached that land of opportunity, the United States, he was disconcerted by the independence and lack of deference of the lower orders. His reaction was the thoroughly Tory comment, 'If there was more subordination, it would be better for them all'.⁴²

There seems also to be an inherent contradiction between his attitude to the poor and his celebration of industrial expansion and general economic 'improvements'. For what relevance could *ad hoc* personal charity of the kind he recommended have to the problems of the anonymous new towns that were burgeoning as industry got under way? Perhaps Priestley lived a little too early to be expected to appreciate this point, but his conception of charity does seem oddly nostalgic for one who was in other ways so self consciously advanced.

But the key to Priestley's curious combination of social attitudes (as to so many of his other opinions) lies in his overwhelmingly religious approach to life. Unlike the bourgeois ideologists of the classic model, he did not look at society from the point of view of economics and efficiency, but with moral and religious considerations in mind. It was not the requirements of the market but the conditions of moral improvement that dominated his social judgements. Although he had read Adam Smith and sympathized with *laissez-faire*,⁴³ it is obvious that he did not think in economic terms, nor appreciate the social significance of the 'dismal science' of political economy that was being developed in his lifetime.

Those who did reflect upon the new laws of political economy found the exercise shattering to traditional social paternalism. Nowhere is this more conspicuous than in the case of Edmund Burke. If anyone in Priestley's generation might be expected to have taken a traditional, paternalist view of the relations between rich and poor, it should surely be the defender of the Old Regime, the philosopher of conservatism. And yet, when Burke turned his attention to such questions, what emerged was his *Thoughts and details on scarcity*⁴⁴ in which paternalism is rejected in the name of an economic pessimism that is underwritten, not softened, by religion: Burke wrote that one must resist 'the very first idea, speculative or practical, that it is within the competence of government, taken as government, or even of the rich, as rich, to supply to the poor, those necessaries which it has pleased the Divine Providence for a while to withhold from them... it is not in breaking the laws of commerce, which are the laws of nature, and consequently the laws of God, that we are to place our hope of softening the Divine displeasure to remove

any calamity under which we suffer'.⁴⁵ If the standard-bearer of traditionalism could write like this, one can only speculate about how well Priestley's Christian humanitarianism would have stood up to a serious study of economics.

Priestley's social attitudes were a curious mixture, then, in some ways characteristic of 'bourgeois liberalism', but with the stress on self-help softened by traditional paternalism, and economic considerations subordinated to a humanitarian religion. This blend may seem incongruous, and it certainly lacks the harsh clarity and coherence of, say, the secular utilitarian economics that underlay the New Poor Law of 1834.

From Priestley's own point of view, however, his ideas were coherent, because all questions of social inequality were referred to a single criterion, that of moral improvement. Aristocracy and slavery were condemned by this criterion: but both increased opportunities to rise in society and paternalistic inequality between rich and poor were sanctioned by it. If one looked at society with a view to promoting moral improvement, that is, then opposition to the old hereditary ranks and encouragement of enterprise and competition did not by any means exclude a continuing concern—paternalistic, well-intentioned and oppressively moralistic—for the welfare (and especially the moral welfare) of the lower classes.

It is not always the clearest ideas that have most influence. Historians of the nineteenth century Liberal Party have been warned by John Vincent not to attribute to the bulk of ordinary Liberals coherent social theories that were in fact confined to a small intellectual elite. For most Liberals, Vincent stresses, Benthamism and the economics of the Manchester School were unknown or insignificant, whereas what really fuelled their political attitudes was religion and the moralistic humanitarianism that flowed from it.⁴⁶ (Hence, for example, the importance of Prohibition, a cause which seems oddly out of tune with academic models of classical liberalism). It may be, therefore, that versions of Priestley's combination of social attitudes were by no means uncommon in the century after his death. In fact, if we consider the importance of the moralistic, paternalistic liberalism of T.H. Green in laying the foundations of the British welfare state, we might even suggest that Priestley's views, incongruous and partly backward-looking as they may seem, were in a sense within what was to become the mainstream of social progress. Priestley himself would no doubt have liked to think so.

- ¹ K. Marx and F. Engels, 'Manifesto of the Communist Party', in L.S. Feuer, (ed.), *Marx and Engels, basic writings on politics and philosophy* (Garden City, Anchor, 1959), 9.
- ² H. Perkin, *The origins of modern English society* (London, Routledge, 1969), 218-230. This book is a particularly clear example of the sociological approach to history, and sharply contrasts the new 'entrepreneurial ideal' with traditionalism paternalism.
- ³ His father was a cloth-dresser of Birstal, near Leeds. See F.W. Gibbs, *Joseph Priestley* (London, 1965), 2.
- ⁴ *Memoirs of Dr. Joseph Priestley* (1806); see J.T. Rutt, *The theological and miscellaneous works of Joseph Priestley*, 25 vols. (London, (1817-31), I(i), 205. Subsequent references to Rutt's edition of Priestley are indicated by Roman numerals.
- ⁵ XXV.
- ⁶ *A political dialogue on the general principles of government*, published anonymously in 1791: XXV, 95.
- ⁷ e.g. 'Preface' to *The history and present state of electricity*, 1767, XXV, 351.
- ⁸ *A course of lectures on oratory and criticism*, 1777.
- ⁹ XXIII, 255.
- ¹⁰ XXV, 92.
- ¹¹ On the origins and effects of this soubriquet, see Gibbs, ch.12.
- ¹² After Priestley moved to America, William Cobbett, who was at that time a rabid Tory, made various scurrilous accusations against him. One of the things that upset Priestley most was Cobbett's description of his house as 'a shed', and he replied, with a fine balance of pride and principle, 'It would be a better founded objection to say, that its appearance is too aristocratical for the habitation of a democrat'. (*Letters to the inhabitants of Northumberland*, 1799, XXV, 116).
- ¹³ Sermon on *The proper objects of education in the present state of the world*, 1791, XV, 426.
- ¹⁴ *Miscellaneous observations relating to education*, 1778, XXV, 23.
- ¹⁵ *An essay on the first principles of government*, 1768, XXII, 14; *The present state of liberty in Great Britain and her colonies*, 1769, XXII, 385.
- ¹⁶ See C.B. Macpherson, *The political theory of possessive individualism* (Oxford, Oxford University Press, 1962), passim.
- ¹⁷ *A sermon on the subject of the slave trade*, 1788, XV, 366.
- ¹⁸ Priestley denounced the 'assurance and folly' of some Europeans, who claimed that the Negroes were an inferior race. Any apparent inferiority was, he said, due simply to the degrading effects of servitude, *Sermon on the slave trade*, XV, 379-80.
- ¹⁹ See, for example, *Scriptural researches into the licitness of the slave trade* dedicated to the Mayor and Corporation of the City of Liverpool by the Rev. Raymund Harris, 1788.
- ²⁰ *A sermon on the subject of the slave trade*, XV, 386.
- ²¹ See M. Cranston, *John Locke* (London, Longmans, 1957), 424.
- ²² For an example from the early days of Puritanism see 'William Perkins and the Poor' in C. Hill, *Puritanism and revolution* (London, Panther, 1968).
- ²³ *The case of poor emigrants, recommended*, 1797, XVI, 501.
- ²⁴ See, for example, *A discourse on occasion of the death of Dr. Price*, 1791, XV, 448.
- ²⁵ i.e. industrial workers.
- ²⁶ Priestley was, of course, professionally interested in different kinds of air, and he got Matthew Boulton to send him some air from the worst slum areas in Birmingham to see how bad it was. To his surprise, his chemical tests showed that it was very little different from fresh country air, and considerably better than air from Lord Shelburne's dining-room at the end of a dinner party. Joseph Priestley, *Experiments and observations on different kinds of air* (London, 1779), IV, 271, 280.
- ²⁷ *Miscellaneous observations relating to education*, 1778, XXV, 23.
- ²⁸ *The Theological Repository... published under the direction of Dr. Priestley*, VI (1788), 482.
- ²⁹ For a contemporary survey of the schemes put forward for solving the problem of increasing pauperism, see Sir Frederick Morton Eden, *The state of the poor* (London, 1797).
- ³⁰ *An essay on the first principles of government*, XXII, 85.

- ³¹ *Lectures on history and general policy*, XXIV, 226.
- ³² See P.H. Gosden, *The friendly societies in England* (Manchester, 1961).
- ³³ Wilkinson petitioned the House of Commons in 1788 to allow him to create a fund for the maintenance of his employees, financed out of their contributions, to provide for them in sickness and old age and replace poor relief. The Commons were unsympathetic, however, *The Parliamentary Register*, Debrett, London, from 1784, XXIII, 130.
- ³⁴ *An account of a society for the relief of the industrious poor, with some considerations on the state of the poor in general*, 1787, XXV, 314-19.
- ³⁵ Perkin, *Origins of modern English society*, 187.
- ³⁶ XXV, 318.
- ³⁷ *Lectures on history*, XXIV, 223.
- ³⁸ *Familiar letters to the inhabitants of Birmingham*, 1790, XIX, 290.
- ³⁹ At Birmingham Public Library.
- ⁴⁰ B. Rumford, *Essays, political, economical and philosophical* (London, 1796), Vol. I.
- ⁴¹ Joseph Priestley to Theophilus Lindsey, 19 Sept. 1796 (MS. Dr. Williams's Library, London).
- ⁴² Joseph Priestley to Theophilus Lindsey, 12 July 1795, *Works*, I(ii), 310.
- ⁴³ See, for example, *Lectures on history*, XXIV, lectures XLIX and LI.
- ⁴⁴ In 1795, i.e. four years before Malthus's *Essay on population*.
- ⁴⁵ *Works of the Rt. Hon. Edmund Burke* (London, Holdsworth and Ball, 1834), II, 254.
- ⁴⁶ J. Vincent, *The formation of the British Liberal Party*, 2nd edn. (Hassocks, Harvester, 1976), xxx-xliii; 30; 35.

JOSEPH PRIESTLEY AND EARLY ENGLISH ZIONISM

Jack Fruchtman, Jr.

He will raise an ensign for the nations, and will assemble the outcasts of Israel, and gather the dispersed of Judah from the four corners of the earth.

Isaiah, xi. 12

The Zionist ideal, as the fulfilment of the Jewish messianic vision, historically has its roots in the traditional longing among Jews to return to their national homeland from which the Roman Emperor Titus finally dispersed them in 70 A.D. When Titus destroyed the Temple in Jerusalem, the Jews scattered throughout the world, and since that time, the Jewish people have prayed daily for their restoration to Israel. As Richard H. Popkin has noted, several cataclysmic events, especially destructive to the Jews, have stimulated speculation concerning the timing of God's decision to restore the Holy Land to the Jews and send the Messiah. The 1492 expulsion of the Jews from Spain and the 1648-49 pogroms in Eastern Europe, for example, became focal points of Jewish apocalyptic writers in the sixteenth and seventeenth centuries.¹

Zionism has also been a political and cultural, and not only a messianic, movement. As an act of political liberation, its conventional origins date from the mid-nineteenth century. Beginning with the visionary ideas of Moses Hess, Leo Pinsker, and others, it culminated at the end of the century in the political activity of Theodor Herzl, who is generally regarded as the modern codifier of political Zionism.² A straight-line evolution in thought and deed is often given from Herzl to the founders and current leaders of the modern Jewish state of Israel.

But Zionism as both a messianic vision and a political goal has not been a concern only to Jews. As Popkin has pointed out, an important, at times direct, connection existed between seventeenth-century Jewish messianism and Christian millenarianism. Menasseh Ben Israel provided such a connection at mid-century. Cromwell summoned Ben Israel, a Dutch rabbi, to England in 1655 after Ben Israel had written his famous and well-circulated tract, *The hope of Israel*, in 1650.³ Although he failed to convince Cromwell to readmit the Jews to England, Ben Israel played an important role in spreading the Zionist idea that before the end of time, the Jews would be restored to the Holy Land, a condition also sought after by many Christian apocalyptic writers.

To Ben Israel, the Jews would return to Palestine and restore Jerusalem as Jews. He was obviously not a conversionist. In contradistinction, Christian Zionists of the seventeenth and eighteenth centuries were followers of a vague pattern of ideas that was at bottom conversionist. It was known as philosemitism: in their advocacy of the restoration of the Jews, they proclaimed that before the apocalypse and before Christ's Second Coming, all heathens, especially the Jewish people, must and indeed would convert to Christianity. Philosemitism, as the term suggests, carries with it a fairly broad basis for religious toleration. It seeks not the physical destruction of Jewry, as does its kin antisemitism, for the goal of the philosemite is the incorporation of the Jew into the larger Christian community, and not his exclusion. And yet, this goal clearly parallels (if not equals) the idea that the antisemite hopes to achieve (namely the elimination of Jews), albeit by a different tactic.⁴

Throughout the seventeenth and eighteenth centuries, England experienced a wave of philosemitism in the guise of Christian Zionism. This philosemitic sentiment was fuelled by apocalyptic notions of the impending return of Christ.⁵ During this period (a period when few Jews lived in England, having been officially banned by Edward I in 1290⁶), the Jews were particularly identified as having the major role in shaping millennial time: their conversion to Christianity and their subsequent return to the Holy Land (or vice versa, it was never really quite clear which was to be first) was to herald the moment of Christ's Second Coming. As early as 1615, for example, Thomas Brightman, fellow of Queen's College, Cambridge, noted that with the overthrow of the Pope (identified as the Antichrist), the Turks would be destroyed in the Holy Land, the Jews converted and restored to Israel.⁷ In 1621, Henry Finch wrote his famous tract, whose title contained the full power of this sentiment: *The world's great restauration, or the calling of the Jewes and with them of all the nations and kingdoms of the earth, to the faith of Christ*. During the English Civil War and the Commonwealth,⁸ these apocalyptic ideas were held by radical Puritans and Fifth Monarchy Men, who through intricate numerological calculations speculated when the actual time of these events would take place.⁹ Indeed, the struggle for the readmission of the Jews to England in the 1650s has been linked to the idea that England itself—as the new Israel—had a millennial role in the providential history so that of all places, the Jews had to be quickly readmitted to England. This very idea was incorporated one hundred years later in the debate over the Jewish Naturalization Bill of 1753.¹⁰

It is in this context of early English Zionism, that we may examine Joseph Priestley's sentiments in the late eighteenth century. By mid-century, these ideas were well-worn. They were not articulated as frequently or as vigorously as they had been during the revolutionary upheavals of the mid-seventeenth century. But with the events surrounding the turmoil of the French Revolution, there clearly was a renewal of political millennial ideas that heightened

the expectations of those who, like Priestley, looked longingly for the appointed hour of the return of Christ and his eternal kingdom. Popular religious beliefs in the late eighteenth century even led some people, like the self-proclaimed 'King of the Jews' Richard Brothers, to identify their own individual role in this cosmic-zionist scheme. Brothers believed that his duty was to gather up the remnant of hidden Jews in England, take them to Palestine, and there await the Second Coming.¹¹ Such desires paralleled the activity of the Ranter Joshua Garment, who in 1650 had declared John Robins the 'King of Israel'. Robins set about organizing the Jews for their return to the Holy Land.¹²

These 'British Israelites', however, were different from Priestley. What they were basically saying was that they had displaced the Jews' 'chosenness' with their own higher 'chosenness'. It was their duty, they thought, to do God's work to fulfil the promise of redemptive history and to make sure that the Jews acted as they thought God wanted them to.¹³ Priestley's apocalyptic historical understanding was clearly millennialist, but not like that of the British Israelites.¹⁴ His idea was that the Jews were special in that they would providentially fulfil their divinely appointed task of moving history to its inevitable end: in order to accomplish this task, they would have to fulfil the Zionist dream when they would restore Jerusalem and when they would be Christian.¹⁵

When he thought of the Jews, he saw them in two clearly distinctive ways. First, they were a people who had developed a code of law (the Torah) and a mode of behaviour based on that law which were far superior to those of any other of the peoples of ancient times. The reason for this superiority was not very difficult for him to determine: God had chosen the Jews 'for the express purpose of hearing a divine testimony against idolatry'. They were 'destined to lead all mankind to the acknowledgement and worship of one true God'.¹⁶ Unfortunately, the Jews were unable to see the logic of their cosmic position in prophetic history, because they had rejected the last and the greatest Hebrew prophet, namely Jesus, whose divine inspiration was as real as that of Moses and whose significance lay in teaching what everyone must do and believe in order to attain salvation.

This image of the Jew led Priestley to a second distinctive way to evaluate the Jews. Because they had rejected Jesus, they themselves caused two rather distressing phenomena. On the one hand, they had brought upon themselves the calamities and disasters that they had encountered in practically every civilization in which they had resided since the fall of Israel in 70 A.D. So long as they continued to reject Jesus and his teachings, they would continue to remain under divine disfavour. They would, therefore, continue to suffer as a people apart who were regarded with disdain and hatred and who were the objects of persecution, rapine, and death.

On the other hand, and most importantly, they held the key to human salvation. They were the instrument that was to lead to the millennial moment in time when, in 'the last days', the earthly conditions of life would be made right for the resurrection of the dead and the creation of a paradisaical kingdom. To prepare the world for this moment, the Jews were to teach the truth of one God, a role that 'was the proper end and use of the distinction to which you are raised', Priestley wrote in his 1799 *Address to the Jews*.¹⁷ The Jews could accomplish this task in one way, the usual way: convert to Christianity and return to Jerusalem. When that occurred, not only would their sufferings abruptly end, but the millennium would come. Priestley had no delusions about either his role in Jewish conversion, or how the Jews might respond to a 'recall'. As a theologian who viewed himself as a rational Christian, he believed that he could prove his arguments only on the basis of facts, and not myths, superstitions, or outrageous belief.¹⁸

Accordingly, in the eighties and nineties (the timing which is noteworthy, of course), Priestley tried to engage the Jews in a dialogue that had only one purpose, and a Zionist purpose at that: to convince them to give up their abhorrence and misconceptions of Christianity, to accept Jesus as their Messiah, and prepare for their restoration. The stereotypical Jew that Priestley had in mind was, then, the Jew, who, if he is to fulfil his providential role, should turn immediately to Christ. For if he could convince the Jews to convert, the moment of the millennium would be hastened. As he put it in 1791: 'Happy indeed, should I think myself to be, in any measure, the instrument in the hand of Divine Providence of opening the eyes of any of you to your true interest, and thereby of restoring you to the favour of God, and to that future glorious state which is destined for you'.¹⁹ Priestley approached the Jewish question in this manner when, in 1787, he addressed twelve letters to the Jews in an effort to enlighten them of the truths of Christianity.

In these letters, he wrote that if the Jews carefully and properly studied their own Hebrew scriptures, they would be persuaded of the future glory that awaited them and all men. Unfortunately, they had delayed this future state, because 'the Divine displeasure against you is not only some thing wrong done by your ancestors, but also something that is approved and persisted in, by yourselves'.²⁰ They had rejected the prophets of their own nation, namely Jesus Christ and his apostles, whom God had sent to teach them specifically of the coming last days. Once the Jews rejected them, the apostles were instructed 'to preach the Gospel to the Gentiles', and for the time being, they had to stop trying to enlighten the Jews.²¹

With this in mind, it was inconceivable to Priestley that the Jews would insist on remaining Jewish. They had accepted (as they still did) the divine mission of Moses. If that mission were acceptable, why was Christ's divine

mission unacceptable?²² After all, God as a benevolent father and creator, would never deceive his people. Indeed, direct testimony demonstrated, to Priestley at least, that the miraculous activities of Jesus were 'evident marks of truth as that of Moses'.²³ If Christ had been an impostor, he clearly would not have rebelled against the Jewish leaders. He would have tried to gain their confidence and support. And he would have accepted, as he did not do, the title of King of the Jews.²⁴ Priestley even suggested that the Jews might become Christian, but at the same time retain their holiday and ritual traditions and customs.²⁵ They only needed to make a proper inquiry into the historical evidence for Christianity. For then they would see the obvious similarities between Christianity and Judaism, such as the belief in one God and God's unity, a belief the Jews had taught their followers early in their own history. And yet, said Priestley, not all Christians understood this idea, but insisted on believing false trinitarian ideas.²⁶

Of course, the greatest of all the problems remained, and that was as long as the Jews continued to be Jewish, the rest of the world would remain the citadel of 'unbelievers'. For the Jews' example, should they convert to Christianity, would lead the world to Christ: 'the longer you continue in your present state, the more is the faith of mankind staggered, and the greater trial it is to your own faith'.²⁷ As he later wrote in his *Address to the Jews*, the Jewish restoration to Palestine (and their conversion to Christianity) was to be 'an event much more extraordinary and memorable' than even their flight from Egypt.²⁸ Whatever the immediate future held, the Jews were ultimately the means and instruments 'in the great plan of Providence' to bring all mankind to the proper knowledge and worship of God.²⁹ Therefore, it was perfectly logical for Priestley to conclude, as he did, that the Jews' conversion to Christianity 'cannot fail to draw after it that of the whole world'.³⁰

Because he determined that the 2300 days (always reckoned as years in the numerological calculations of the latter days) referred to in *Daniel* had ended in 1760, he expected the 'termination of your calamity', as he termed it, 'in less than half a century from this time', which would place their conversion and return to Palestine some time around 1845.³¹ He was certain that with the fall of the French monarchy and with the European wars that followed it, as the papal authority weakened, the end of the Turkish empire was very near so 'you can have a permanent and peaceable settlement in your country [Palestine]'.³² Late in life, he wrote to his friend and former associate Thomas Belsham that events were moving so quickly that he fully expected the imminent 'personal appearance of Jesus'. But this, he added, would 'hardly be before the restoration of the Jews, of which there are no symptoms at present'. Indeed, first the Turkish empire must fall, and to him that did not seem to be very likely at the moment.³³ Still, he surmised who knew what changes would come in the dispositions of men to move the world? In 1799, he

began to wonder whether Napoleon was to be the deliverer, but then decided that he perhaps was not. However, he concluded that 'what is promised will no doubt be fulfilled'.³⁴

Priestley's *Letters to the Jews* were answered by David Levi, a Jewish scholar who was the author of historical commentaries on the Hebrew language and the translator of several Hebrew texts. No matter how honourable Priestley might have thought he had been in suggesting that the Jews should convert, Levi had misgivings about the underlying stereotypical image of the Jews that Priestley had painted in the *Letters*. Levi felt that he had 'To clear our nation from the obloquy which they have laboured for upwards of seventeen hundred years, viz. the charge of crucifying the Lord and Saviour of the world, as the orthodox Christians hold'.³⁵ He was certain that the opinion expressed by Priestley might lead to overt, vicious acts of antisemitism.

However honourable Priestley's motives might have been, they lay in a deeply held belief that the world would be perfected when the Jews fulfilled their Zionist goal. This perspective was, for Priestley, one that had a higher purpose, namely that if the Jews were finally redeemed, then the salvation of the world would be assured, and the millennium come. This motivation richly fuelled the efforts in the next century to carry on the work of English Christian Zionism: for these efforts were to become institutionalized in groups such as the Society for the Promotion of Christianity among the Jews.³⁶ Joseph Priestley, as an early English Zionist, was, then, an important link in the transmission of these ideas from the eighteenth to the nineteenth century. Never once did he believe his role was to be their leader, as did Brothers (a man later judged insane and sentenced to Newgate). Through rational argument and stated facts, Priestley believed that the Jews could actually be persuaded that what was in the interest of the entire world was also ultimately in their own true interest as well. In this way, their return to Palestine and their conversion to Christianity would be the prime stimulant to inaugurate millennial time.

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¹ Richard H. Popkin, 'Jewish Messianism and Christian Millenarianism', in Perez Zagorin (ed.), *Culture and politics from puritanism to the enlightenment* (Berkeley, 1980), 67-90.

² Walter Laqueur, *A history of zionism* (New York, 1972), esp. 40-135.

³ Popkin, 73-76.

⁴ Todd Endelman, *The Jews of georgian England, (1714-1830): tradition and change in a liberal society* (Philadelphia, 1979), 50-85. Anti-semitism also proclaimed conversion a part of its programmatic attempt to eliminate the Jews in the world. See Leon Poliakov, *The history of antisemitism: from the time of Christ to the Court Jews*, trans. Richard Howard (New York, 1965) and Joshua Trachtenberg, *The devil and the Jews: the medieval conception of the Jew and its relation to modern antisemitism* (New York, 1966).

⁵ On English millennialism in general, see Bernard S. Capp, *The Fifth Monarchy men: a study in seventeenth-century millenarianism* (London, 1972); Paul Christianson, *Reformers and Babylon: apocalyptic visions from the Reformation to the eve of the civil war* (Toronto, 1978); Christopher Hill, *The world turned upside down: radical ideas during the English revolution* (New York, 1972); William Lamont, *Godly rule: politics and religion, 1603-1660* (London, 1969); Peter Toon (ed.), *Puritans, the millennium, and the future of Israel: puritan eschatology, 1600-1660* (Cambridge, 1970).

⁶ Endelman cites one study that indicated that in 1660, there were only thirty-five families in England, and in 1684, ninety families. See Endelman, 19 and 322, n. 5.

⁷ See Capp, 23; Endelman, 53; Clarke Garrett, *Respectable folly: millenarians and the french revolution in France and England* (Baltimore, 1975), 122-25; Bernard Glassman, *Antisemitic stereotypes without Jews: images of the Jews in England, 1290-1700* (Detroit, 1975), 80; Lamont, 49-50; Peter Toon, 'The latter day glory' in Toon (ed.), 26-30.

⁸ On Cromwell's philosemitic views, see Endelman, 17-19; Glassman, 107-35; and Poliakov, 206-09.

⁹ See Capp, passim; R.G. Clouse, 'The rebirth of millenarianism', in Toon (ed.), 42-65; Christopher Hill, *Antichrist in seventeenth century England* (London, 1971), passim; Toon, 'Conclusion,' in Toon, (ed.) 128; and Ernest L. Tuveson, *Millennium and utopia: a study in the background of the idea of progress* (Gloucester, Mass., 1972), 85-87.

¹⁰ Endelman, 59-64. There were, of course, purely economic reasons which were as compelling for the readmission of the Jews.

¹¹ *Ibid.*, 66-67. See also Garrett, 183-84 and J.F.C. Harrison, *The second coming: popular millenarianism, 1780-1820* (New Brunswick, 1979), 79-83. For a French expression of this ideal, see Ruth F. Necheles, *The Abbe Gregoire, 1787-1831: The odyssey of an egalitarian* (Westport, 1971), 25-50.

¹² Endelman, 55.

¹³ Popkin, 70-71 and 85.

¹⁴ See Jack Fruchtman, Jr., 'Politics and the apocalypse: The republic and the millennium in late-eighteenth-century english political thought,' in Harry C. Payne (ed.), *Studies in eighteenth-century culture*, (Madison, 1981), vol. 10, 153-64.

¹⁵ See Richard H. Popkin, 'The philosophical basis of eighteenth-century racism', in Harold E. Pagliaro (ed.), *Studies in eighteenth-century culture*, (Cleveland, 1973), vol. 3, 245-62.

¹⁶ Joseph Priestley, *Notes on all the books of scripture, for the use of the pulpit and private families* (Northumberland, 1804), in J.T. Rutt (ed.), *The theological and miscellaneous works of Joseph Priestley* (Hackney, 1817-31), vol. XI, 10. All citations from Priestley's works are taken from Rutt. See also Joseph Priestley, *A comparison of the institutions of Moses with those of the Hindoos and other ancient nations* (Northumberland, 1799), Works, XVII, 128-366; idem, 'A dissertation, in which are demonstrated the originality and superior excellence of the mosaic institutions', in *Notes on all the books of scriptures*, Works, XI, 15-33; and idem, *Address to the Jews* (Northumberland, 1799), Works, XX, 281.

¹⁷ Priestley, *Address to the Jews*, 294.

¹⁸ Endelman, 66-67 for representative expressions of this idea in the thought of a minister of the Church of England, Richard Beere, and a Baptist minister, James Bicheno.

¹⁹ Joseph Priestley, *Address to the Jews, prefixed to a discourse on the resurrection of Jesus* (1791), Works, XX, 277.

²⁰ Joseph Priestley, *Letters to the Jews, part I, inviting them to an amicable discussion of the evidences of Christianity* (Birmingham, 1787), *Works*, XX, 233. See also Joseph Priestley, *Letters to the Jews, part II, occasioned by Mr. David Levi's reply to the former letters* (Birmingham, 1787), *Works*, XX, 268.

²¹ *Ibid.*, 234.

²² As a Socinian, Priestley did not believe that Christ was divine, only that his mission was.

²³ Priestley, *Letters to the Jews*, I, 238.

²⁴ *Ibid.*, 239.

²⁵ *Ibid.*, 245. See also Joseph Priestley, *Address to the Jews* (1791), *Works*, XX, 278.

²⁶ Priestley, *Letters to the Jews*, II, 261.

²⁷ *Ibid.*, 268.

²⁸ Priestley, *Address to the Jews* (1799), 283.

²⁹ *Ibid.*, 294.

³⁰ *Ibid.*, 300.

³¹ *Ibid.*, 286.

³² *Ibid.*, 290.

³³ Joseph Priestley to Thomas Belsham, 5 June 1798, *Works*, I, part 2, 401.

³⁴ Joseph Priestley to Thomas Belsham, 16 Apr. 1799, *Works*, I, part 2, 417.

³⁵ David Levi, *Letters to Dr. Priestley in answer to those he addressed to the Jews* (London, 1794), 67. This work was originally published in 1787. I used the second edition.

³⁶ See, for example, Endelman, 67-85 and Ernest R. Sandeen, *The roots of fundamentalism: British and American millenarianism, 1800-1930* (Chicago, 1970), 3-41.

ENLIGHTENMENT AND DISSENT IN SCIENCE: JOSEPH PRIESTLEY AND THE LIMITS OF THEORETICAL REASONING

John G. McEvoy

*...the laws of infinite Wisdom cannot be fully estimated
by finite intelligence; yet there is a glory in the effort,
and delight and instruction in the result.*

*Nothing is so fatal to the progress of the human mind as to
suppose that our views of science are ultimate; that there
are no mysteries in nature; that our triumphs are complete,
and that there are no new worlds to conquer.*

*(The collected works of Sir Humphry Davy, Bart., ed. John Davy,
9 vols. (London, 1839-40), 8, 183 & 318.)*

Earlier generations of historians of science tended to see Priestley in the guise of an intellectual conservative and a theoretical dogmatist. His dogged opposition to the oxygen theory was presented as evidence of reactionary philosophical tendencies, to be contrasted with his reformist predilections in religious and political affairs. In this light, it appeared that Priestley was isolated by ignorance and prejudice from his more knowledgeable and progressive scientific contemporaries, who were eagerly embracing the new, revolutionary chemistry propounded by Lavoisier and his associates. Whiggish sentiments informed the view that Priestley's thought had fallen victim to the premature and erroneous generalizations of the phlogiston theory, which, as a testimony to the 'perversity of the human mind' had 'to be swept away in the triumphal march towards truth'.¹ Lost in this jungle of vain idolatry and speculation, Priestley sadly strayed from 'the path of true discovery' and forfeited, thereby, any claim, based on his experimental researches, to be regarded as 'one of the fathers of modern chemistry'.² In this manner, Priestley's rejection of the 'French system' of natural philosophy has been traced to a perverse intellectual entrenchment.

Although recent accounts of Priestley's scientific thought have challenged and rejected the more pejorative aspects of his traditional image in the historical community, they persist in maintaining the whiggish presuppositions of their predecessors, upholding the manifest superiority of the oxygen theory over its phlogistic rival and the irrational nature of Priestley's opposition to Lavoisier. Whereas earlier historians of science treated Priestley as a dogmatic defender of the Stahlian tradition, their modern counterparts perpetuate this doctrinaire image by grounding his intellect in the principles of Newtonian physicalism. According to R.E.Schofield, it was

Priestley's Newtonian interest in the 'fundamental constitution of matter and in how and why they combined 'that prevented him from appreciating the 'easy interpretation' that his experiments received 'within the frame of the oxidation theory'.³ More recently, Henri Laboucheix has used some rather impenetrable reasoning and fanciful speculation to defend a confused amalgam of innovation and tradition, in which Priestley's defence of the phlogiston theory reveals how he was both 'bewitched by the idols of the mind' and committed to a 'quest for the substance and forces of which the universe is composed'.⁴ According to Laboucheix, Priestley's Newtonian chemistry was based upon 'what we in our day term energy, and the source of this is God'.⁵ Now, while Laboucheix is fundamentally correct in seeking to relate Priestley's chemistry to the rest of his thought, there is little or no textual evidence to support the particular interpretation defended by him and Schofield.⁶ Indeed, a successful integration of Priestley's chemistry into the totality of his thought requires a rejection of the pervasive, whiggish view of the phlogiston theory and Priestley's commitment to it. This paper will concentrate on correcting our understanding of the status and function of scientific theorizing in Priestley's thought, leaving the historical rehabilitation of the phlogiston theory to another study.

Fundamentally, it has to be realized that, although Priestley's defence of the phlogiston theory was dogged, it was certainly not dogmatic. Dogmatism in science was anathema to the basic principles of Priestley's thought, which emphasized the limited role of theoretical knowledge in natural philosophy. Priestley's thought placed a variety of limits on our attempts to satisfactorily understand the universe. These limits arose out of the direction of science by some 'higher rule', which made natural philosophy subservient to the fulfilment and perfectibility of human beings.⁷ Recognition of this governing ordinance and the restrictions it imposed on the intellect was a necessary condition of the progress of natural philosophy towards its inherent epistemic, spiritual, moral and political objectives. These philosophical reflections on the function and nature of natural philosophy shaped Priestley's contributions to the newly emergent science of electricity and the embryonic chemistry of gases. This philosophical framework also conditioned Priestley's opposition to the oxygen theory, which he rejected not only because it challenged the phlogiston theory, but also because it undermined genuine progress in natural philosophy by cultivating insensitivity to the epistemic limits of the human mind.

II

Joseph Priestley was an eighteenth century rationalist and Christian. This dual commitment to reason and revelation shaped the basic categories of his thought and placed him in the vanguard of Rational Dissent. With proselytizing zeal, he argued that the way to obtain religious knowledge was

through a rational analysis of nature and scripture and not by abandoning reason to dogma and mystery.⁸ In this manner, Priestley hoped to convince his philosophical contemporaries of the '*reasonableness and truth* of Christianity'.⁹ He thus insisted not only on the rationality of the 'Revealed Truth' itself but also on that of the method whereby it was to be acquired. For Priestley, faith was the rational outcome of consistent rational inquiry and contained nothing either 'paradoxical' or 'contrary to all *natural appearances*'.¹⁰ A rational analysis of 'Biblical History' demanded the acceptance of the truth of Christianity and anyone who rejected it in the face of such evidence must cease to be a philosopher. Priestley called for consistency of reasoning rather than the experience of conversion: 'if persons who pretended to the character of *philosophers*, would be so throughout, and carry the same spirit into the study of history, and of human nature, that they do into their laboratories' then they would become 'as firm believers in Christianity as myself'.¹¹ In all matters, whether natural or revelatory, material or historical, philosophers should first assure 'themselves with respect to *facts*' and then explain 'those facts by reducing them to *general principles*'.¹² Priestley's notion of rationality was thus characterized by a meticulous attention to the 'facts' and their inductive consequences, and by a passionate disdain for theoretical speculation and hypothetical disputation. In this manner, Priestley's Rational Dissent gave expression to the unusual synoptic power of his mind and served to demonstrate how the doctrines of determinism, necessity, causation, materialism and Socinianism were compatible with a rational understanding of nature and of Scripture. Furthermore, Hartleyian associationism universalized the scope of Priestley's empiricist epistemology in such a way as to integrate his view of the aims and methods of rational inquiry into the totality of his intellectual vision. While recognizing the interconnectedness of Priestley's system of thought, this essay will concentrate on the conceptual foundations of Priestley's notion of rationality and will relate it to his debate with the 'French chemists'.¹³

The core of Priestley's mature theism sought a rational grounding for the world in God's nature and creative act. This analysis led Priestley to the view that the ultimate aim of natural philosophy was the formulation of a single act of 'simple and general laws', to reveal how God's immutable act and eternal design are realized in 'both the material and the intellectual world'. However, Priestley's theism also implied that nature was ruled by a principle of plenitude, or epistemic novelty, which rendered this reductive, explanatory objective forever inaccessible to the human mind. Priestley's methodological thought thus embodied a dynamic tension, between his recognition of the ultimate significance of simple laws and theories in science and his sense of the epistemic limits inherent in the theoretical activity of the human mind. These metaphysical considerations issued in a set of ontological commitments, which emphasized the hierarchical structure of the natural world and which portrayed the epistemic activity of the mind in terms of the 'ascension' of an

endless, hierarchical 'chain of cause and effect'. Priestley's theistic views also reinforced the nominalism inherent in Lockean sensationalism, which shaped his methodological thought in a way that placed severe constraints on the epistemic status and function of theoretical conjecture in natural philosophy.

Priestley's mature theism related the ultimate intelligibility of nature to its structure as a deterministic system of benevolence. Nature and scripture teaches us that the world is constructed according to the dictates of God's infinite benevolence, power and wisdom. Consequently, it embodies a 'design', which guarantees not only the happiness of each individual, but which ensures that the happiness of one is inextricably involved in the happiness of all.¹⁴ It followed, according to Priestley's *Doctrine of philosophical necessity*, that all natural and human events, from the beginning to the end of the world, 'make one connected chain of *causes and effects*', which is established and maintained by the Deity to guarantee the ultimate perfectibility and happiness of mankind.¹⁵ Within this frame of thought, evil is only an appearance, resulting from an inadequate, partial view of things, detached from the whole of which they are a part. Evil and suffering will disappear when our knowledge becomes increasingly adequate and reflective of how the laws of nature are designed by God 'to make all the percipient creatures happy'.¹⁶ Furthermore, human beings can attain happiness and perfection only by identifying themselves, through their knowledge and understanding, with the whole order of Divinely ordained nature and by submerging their individual interests in this understanding.

And when our will and our wishes shall thus perfectly coincide with that of the Sovereign Disposer of all things, *whose will is always done, in earth as well as in heaven*, we shall in fact, attain the summit of perfection and happiness.¹⁷

Hartleyan associationism also led Priestley to a view of the mechanical genesis of man's personality, wherein his perfectibility is an inevitable consequence of an increasingly adequate knowledge of a benevolent world. According to Hartley,

Some Degree of Spirituality is the necessary Consequence of passing through life. The sensible Pleasures and Pains must be transformed by Association more and more every Day, upon things that afford neither sensible Pleasure nor sensible Pain in themselves, and so beget the intellectual Pleasures and Pains.¹⁸

Priestley continued in this vein, arguing that a philosopher should be above the rest of mankind, enjoying an elevated view of things, in which 'all temporary evils and inconveniences vanish in the glorious prospect of the greater good in which they are subservient. Hence, he is able to venerate and

rejoice in God'.¹⁹ In this manner, Priestley's search for nature's simple and unifying laws posited an intimate connection between the intellectual and spiritual affairs of human beings. The moral and intellectual progress of humanity is inextricably linked to the use of its rational faculties in the determination of nature's lawful structure. Priestley hereby placed science in the vanguard of the Enlightenment, where it served the general interests of human progress and emancipation.

However, although Priestley's theism guaranteed nature's lawful structure, still it placed severe restrictions on the ability of human beings to understand that structure. As Hartley put it, 'the true system of things is infinitely more transcendent in greatness and goodness than any Descriptions or Conception of ours can make it'.²⁰ According to Priestley, the 'immutability' of the Divine Essence requires that the world is coextensive and coeval with its infinitely perfect creator. Hence, nature, like God, must be 'infinite and inexhaustible'.²¹ The epistemic consequences of this ontological fecundity in Priestley's system of thought implied that inquiry into nature would always yield novelty and be forever incomplete. The 'necessary connections of all things in the system of nature' guarantees that every discovery reveals new domains of ignorance, 'so that we cannot solve one doubt without creating several new ones'.²² Indeed, Priestley measured scientific progress not only by an increase in knowledge but also by a growing sense of ignorance. Considering knowledge as a speck of light in the vast darkness of ignorance, then the 'greater the circle of light, the greater is the boundary of the darkness by which it is confined'.²³ In this manner, Priestley claimed that our finite minds could not fully comprehend and explain a world that is infinite and inexhaustible in its variety and multiplicity.

This element of Priestley's theism reinforced his consciousness of the rich particularity of nature, thereby orientating his thought towards the establishment of an adequate factual basis for natural philosophy, and so reinforcing a requirement dictated by his epistemic commitments. At the same time, his recognition of the 'fecundity and inexhaustibility of nature opposed the thrust for theoretical simplicity and adequate explanation arising out of the role of natural philosophy in the ascent of human beings to perfectibility and happiness. According to this latter view, as the mind progresses to more adequate knowledge, it becomes more evident how all finite things are measured under simple, universal and determinable laws. Indeed, the search for single and unifying laws was strong in Priestley's thought, giving epistemological and methodological content to the doctrine of progress in the comprehension of nature. Given the plenitude of nature, however, at no stage can the human mind contemplate it with the simplicity of divine knowledge. Consequently, Priestley concluded that, our theoretical understanding will be forever incomplete and must be made subservient to the proliferation of new facts in

natural philosophy. In the interest of benevolence and perfectibility, however, he thought that it was the duty of human beings to struggle towards the unattainable goal of adequate knowledge.

The tensions and conflicts involved in Priestley's view of the need and duty of the finite mind to understand the infinite universe helped to shape the basic contours of his ontological commitment and scientific methodology. Accordingly, he argued that the human mind comprehends the Divine design only by ascending an *endless* causal chain, structured according to the hierarchical rankings of universality, generality and particularity. This ontological picture shaped Priestley's view of the logical structure and epistemic status of a scientific theory and resulted in a sceptical challenge to contemporary theories in natural philosophy. Priestley's conflicting theistic tendencies were most generally expressed in a 'romantic' vision of human destiny, which saw some human beings as involved in an endless process of progressive enlightenment, in which the infinite unfolds before the finite. It was his deep conviction that, 'from the infinity of the Divine nature and the Divine works, we may promise ourselves an endless progress in our investigation of them: a prospect truly sublime and glorious'.²⁴ Naturally, this epistemic enterprise would be retarded and distorted without a judicious sense of the limits of our finite, theoretical understanding and an openness to the infinite potential and novelty inherent in our experimental inquiries. Ultimately, then, Priestley's theistic sensibilities emphasized the shortcoming and limitations of our theoretical understanding *vis-a-vis* the infinite and inexhaustible factuality of a Divinely constituted nature.

III

According to Priestley's Lockean sensationalism, the mind's cognitive encounter with the world begins with the particularity and multiplicity of sensationalist experience.²⁵ Natural philosophy then reveals how a 'vast variety' of nature's effects proceeds from 'the same general principles, operating in different circumstances'.²⁶ Priestley's list of 'general principles' included such entities as 'the acidifying principle... phlogiston... the principles of *heat, light* and *electricity*... attraction, repulsion and magnetism'.²⁷ The interrelation and 'adaptation to each other' of these causal agents was taken as the mark of a 'design' in nature, which enabled Priestley to reduce their generality to the universality of God's immutable action and eternal design.²⁸ By 'constantly ascending in this chain of cause and effect', we realize eventually that every cause is a 'proximate cause' and that the real cause of all things is God's sustaining action.²⁹ As Priestley put it in 1772, '*all the powers of nature, or the tendencies of things to their different motions and operations, can only be the effect of the Divine energy, perpetually acting upon them, and causing them to have certain tendencies and effects*'.³⁰

Priestley thought that the hierarchical structure of this Divinely constituted reality would ultimately be captured in a 'general theory', which he regarded as the business of natural philosophers to work towards.³¹ According to Priestley's inductive sensationalism, this theory would consist of 'a number of general propositions comprehending all the particular ones, deduced from single experiments'.³² The more progress we make towards the realization of this goal, 'the more particular facts' are reduced to 'simple and general laws' and the more knowledge is 'comprised' in a 'fewer general propositions'.³³ However, Priestley's view of the infinite diversity and multiplicity of nature implied that this inquiry was to be governed by the inductive principles of rationality inherent in his nominalistic sensationalism, according to which 'a general proposition is proved by an induction of a sufficient number of particulars which are comprised in it'.³⁴ Since propositions that transcend these epistemic limits ignore the inexhaustible particularity of nature, they had no cognitive value in Priestley's eyes. Consequently, he treated the hypothetical products of our theoretical understanding with scepticism and suspicion. Nevertheless, he insisted on the essential heuristic function of hypotheses in the development of an appropriate empirical basis for the inductive emergence of a 'general theory' sometime in the distant future. However, progress towards this goal required the maintenance of a strict cognitive distinction between 'facts' and 'hypotheses', between propositions that have, or can, be inductively established and those that have not, or cannot, be so proved. With this view of the limits of our theoretical understanding, Priestley repeatedly called upon the scientific community to eschew theoretical speculation and to concentrate on the proliferation of new 'facts'. Explanatory hypotheses that transcend the phenomenal realm should be given no 'great stress'. 'Upon this, as upon other occasions, I can only repeat that it is not my *opinions* on which I would be understood to lay any great stress. Let the *new facts*, from which I deduce them, be considered as *discoveries*, and let other persons draw better inferences from them if they can'.³⁵

Priestley's focus on the discovery of new 'facts' in natural philosophy made theory-construction a trivial matter in comparison. Although he recognized the essential role of 'hypotheses' in the *discovery* of new facts, he was naively-inductivist in his conception of the relation between 'facts' and 'theories'. According to this view, after conducting experiments to test hypotheses we 'generalize the conclusions we draw from them, and by this means... form a *theory, or system of principles*, to which all the new facts may be reduced, and by means of which we may be able to foretell the results of future experiments'.³⁶ The real business of natural philosophy lay in the generation of 'facts', or 'particular propositions'. Priestley viewed theory construction as a simple, twofold process, of generalizing the interphenomenal relations found in a number of instances to all instances of the same kind, and of assigning the

resultant 'general proposition' to a place in the deductive scheme of a 'general theory', the logical structure of which reflects the hierarchical structure of reality.

Priestley's methodological emphasis on the collection of 'facts' reflects the influence of his associationistic view of the mind, according to which all men have equal access to knowledge. Priestley identified the content of the sensory with the concepts applicable to it, so that judgement became an other form of perception. As in perception, so in judgement, the mind is passive, the process mechanical and the content completely determined by external objects.³⁷ Priestley's conception of a passive mind and the identification of judgement with perception formed his theory that thought is a natural product of the mechanical laws of association. In all human minds the conceptualizing power and content of the sensory are the same. Given a sensory basis for the accumulation of 'facts', a 'general theory' will emerge as a product of nature shaped by the associationist powers of the mind. This was the heart of Priestley's conception of rationality. Discoveries in natural philosophy depend on the ability to take infinite pains in gathering 'facts'; they can therefore be made by anybody.

Priestley's associationist belief in the epistemic equality of all men was an integral part of his philosophy of liberal individualism and was inherent in the epistemic significance that Rational Dissent gave to individual inquiry and private judgement.³⁸ For example, Priestley's Dissenting philosophy of education limited the function of teachers and instructors to the elimination of prejudice, superstition and 'every other bias the mind(s)' of their students might 'be under'. The more positive acquisition of knowledge was left to the individual initiative of the students, who were told to 'form all maxims for yourselves, from premises and *data* collected, and considered by yourselves'.³⁹ Priestley's confidence in this pedagogical procedure derived from his view that, in a person liberated from the distracting influences of prejudice, dogma and superstition, the mechanical laws of association would operate on an adequate sensory basis to direct the passive mind to cognitively significant conclusions.

These considerations led Priestley to oppose the elitist image and practice of science, which emphasized the unique role of theoretical genius in the acquisition of knowledge. He argued that natural philosophy should be viewed as progressing through the co-operative interaction of experimentalists living in a community of epistemic equals. Instead of being bonded by the principles of a shared paradigm, the scientific community envisaged by Priestley would be based on 'an easy channel of communication', whereby each individual would be afforded the opportunity of 'seeing everything that relates to his own favourite pursuit'.⁴⁰ Priestley related epistemic progress to the Baconian cooperation of individuals, united in an alliance of diverse views

and interests, and unencumbered by the institutional accretions of established theory and practice. This view of epistemic progress in science harmonized with his Dissenting politics, which viewed prejudice, dogma, or entrenched theoretical commitment of any sort, as an obstacle to progress in all human affairs, civil as well as religious.⁴¹ Priestley's providential belief in the inevitable progress and perfectibility of human beings reinforced his liberal individualism at this juncture. He took it to be 'an universal maxim, that the more liberty is given to everything which is in a state of growth, the more perfect it will become'.⁴² Consequently, he opposed the 'unnatural system of rigid unalterable establishments', which he regarded as an obstacle to the 'constant, though slow improvement' that 'we acquire from experience and observation'.⁴³ This was particularly true of 'whatever depends upon science', which Priestley related to the spiritual edification and moral perfectibility of human beings through a more adequate knowledge of nature. Science could support the forces of rationality and liberalism and perform its edifying function only if it abandoned all dogmatic modes of thought and responded to the intellectual and moral development of the individual. For this reason, Priestley looked for the end to 'all undue and usurped authority in the business of religion as well as of science'.⁴⁴ Furthermore, the 'rational and liberal' spirit moved Priestley to oppose the intellectual uniformity inherent in the communal acceptance of Lavoisier's paradigm. Intellectual 'establishments' prevented the progress of knowledge assuredly as their 'civil' and 'religious' counterparts impeded human perfectibility in general. In this manner, Priestley's liberal individualism emphasized the role of experimentation in natural philosophy and reinforced the opposition to theoretical reasoning and axiomatic conceptualization inherent in the theistic and epistemic principles of his thought.

IV

The philosophical framework outlined in the previous pages placed a variety of regulative constraints on Priestley's scientific conceptualization, which functioned to integrate natural philosophy into the totality of his thought. For example, his *History of electricity* was structured according to historiographical principles designed to reveal the progressive quality of the deterministic interaction between man and nature. Indeed, Priestley used the history of science to 'animate us in our attempts to advance still further', and 'to suggest methods and experiments to assist us in our future progress', towards the state of intellectual and moral perfectibility that is our determined destiny.⁴⁵ His account of the history of electricity also served to emphasize the epistemic novelty that was a crucial element in his conception of the progress of human inquiry in the comprehension of an inexhaustible nature. Furthermore, the epistemic distinction between 'facts' and 'hypotheses' shaped Priestley's view of the cognitive status of eighteenth century electrical theories and influenced his own electrical researches. Finally, all of

his publications on electricity were designed to offset the elitist image of science, by replacing the 'synthetic style' of systematic speculation and axiomatic presentation with an 'analytic and historical' account of the 'faltering steps', 'casual turns of thought' and qualities of 'patience and industry', involved in all scientific discoveries and within the ability of 'many persons'.⁴⁶

Similar philosophical constraints shaped Priestley's long career in pneumatic chemistry.⁴⁷ The belief in a deterministic system of benevolence was an integral part of his analysis of a variety of phenomena, including photosynthesis, relating to the constitution of the atmosphere and its place in the 'general plan' of a benevolent Creator. Priestley's chemical language was also affected by his epistemic distinction between 'facts' and 'hypotheses', which led him to boycott conventional terminology and its associated commitments to 'hypotheses' concerning chemical compositions and reaction mechanisms. In contrast, Priestley restricted his own language to a vocabulary of 'facts', so that his chemical nomenclature expressed the perceptible properties of isolable substances and the perceptible circumstances of their production and modification. Throughout his chemical career, Priestley minimized the cognitive significance of hypotheses and speculations pertaining to the chemical compositions and reaction mechanisms underlying chemical phenomena. Instead, he concentrated his boundless experimental energies on the task of determining the perceptible properties and interactions of the substances of gross chemical experience. Priestley's factual orientation was reinforced by his view of natural philosophy as a cooperative enterprise of egalitarian experimentalists. His chemical publications bristled with empirical information and experimental details, much of which had little or no relevance to the particular arguments or conclusions he was considering at the time. This information was supplied by Priestley to satisfy the demands of the 'analytic and historical' method, and in order to assist contemporary or future members of the scientific community in the pursuit of their own interests.⁴⁸ Finally, Priestley prefaced the rare accounts that he gave of his speculative views with some reference or other to their inevitable cognitive inadequacies, which he readily accepted as a consequence of the unavoidable lag between the ever increasing number of facts at our disposal and our limited ability to comprehend them.⁴⁹

An appreciation of the influence of these philosophical considerations on Priestley's scientific conceptualization undermines the established view that he opposed the oxygen theory because of a blind and dogmatic adherence to an alternative scientific hypothesis. This interpretation of Priestley's role in the chemical revolution is incompatible with his epistemic devaluation of 'hypotheses' and inconsistent with the critical orientation of his Dissenting sensibilities. Priestley's vision of science in the vanguard of enlightened liberalism emphasized the need for a critical opposition to the oxygen theory rather than a speculative defence of the phlogiston theory. According to

Priestley, Lavoisier's 'fallacious hypothesis' was not only generating a 'whole system of error'; it was also becoming entrenched in the scientific community in a way that was disturbingly reminiscent of the 'establishment' of political and religious 'prejudice' in the society at large.⁵⁰ In his situation of growing intellectual and social isolation, Priestley's liberal individualism convinced him that 'no man ought to surrender his own judgment to any mere *authority*, however respectable'; and it encouraged him to use all his energies to oppose the uncritical entrenchment of Lavoisier's 'opinions' among his scientific contemporaries.⁵¹ Furthermore, the 'rational and liberal spirit' called upon the French chemists to openly face and honestly resolve all objections to their system before it became established as the accepted truth. Priestley warned Berthollet and his colleagues against the road to intellectual totalitarianism: 'As you would not, I am persuaded, have your reign to resemble that of *Robespierre*, few as we are who remain disaffected, we hope you would rather gain us by persuasion than silence us by power.'⁵² Insofar as the 'French chemists' promulgated their doctrine with little or no regard for Priestley's legitimate criticisms, they lapsed into an authoritarian mode of thought inimical to the spirit of enlightened liberalism and genuine scientific progress.

Priestley made it perfectly clear that he was not intimidated by the collective force of established dogma. In accord with the dictates of his liberal individualism and epistemic egalitarianism, he was not unduly impressed by the organized power and collective wisdom of his scientific adversaries. On the contrary, he was inclined to criticize them for sacrificing their powers of individual 'observation and reflection' to the dictates of the collective consciousness. Although Priestley was an enthusiastic advocate of science as a co-operative enterprise, his egalitarian view of the scientific community de-emphasized the epistemic significance of a shared body of theory compared with the observations and judgements of individual experimentalists. Thus, he regarded his own repeated failures to obtain the experimental results published by his adversaries with greater epistemic significance than the growing reputation of the 'new system of chemistry' among his learned and respected contemporaries. In this vein, he criticized 'Dr. Maclean' for basing his opinions on what he had read rather than on experiments of his own: 'I speak from my own observations, and I only wish that Dr. Maclean would speak from his.'⁵³ It follows, then, that historians of science are wrong when they trace Priestley's growing intellectual isolation towards the end of his life to an irrational intransigence, or to a dogmatic commitment to outmoded ideas. On the contrary, Priestley's isolated and lonely opposition to the oxygen theory was a measure of his passionate concern for the principles of intellectual freedom, epistemic equality and critical inquiry. 'Not having seen sufficient reason to change [his] opinion, and knowing that free discussion must always be favourable to the course of truth', Priestley opposed the new, chemical 'establishment' to his dying day.⁵⁴

Nevertheless, it has to be admitted that the critical thrust of Priestley's role in the chemical revolution was obscured somewhat by his view that the rejection of the oxygen theory was conceptually tied to the acceptance of phlogiston.⁵⁵ Consequently, his criticism of the former appeared, sometimes, as arguments for the latter.⁵⁶ Nevertheless, as a more extended study of this topic will reveal, Priestley's response to 'the Antiphlogistians' was ultimately conditioned by the critical orientation of his thought. For the moment, Priestley's critical sensibilities can be discerned in the numerous empirical counterexamples and conceptual objections that he levelled at the oxygen theory.⁵⁷ Similarly, many of his experiments in support of phlogiston were also present as insurmountable obstacles to the rational acceptance of Lavoisier's views. On such occasions, Priestley presented experimental and theoretical arguments in favour of phlogiston along with a disclaimer that, 'at least the hypothesis that has been proposed in its place, concerning the constitution of these bodies, which had been said to contain phlogiston, is clearly overturned by them'.⁵⁸ In the same critical vein, Priestley sacrificed an independent development of the theoretical and predictive power of the phlogiston theory in favour of a speculative response to the explanatory successes and problem-solving capacity of the oxygen theory. He thus hoped to establish the futility of adopting such a novel hypothesis when a tried and tested opinion could fit the facts just as easily. By providing a speculative alternative of equivalent explanatory power, Priestley hoped to achieve the critical objective of undermining the explanatory significance and psychological entrenchment of his opponent's 'opinions'. Still, Priestley openly admitted that 'the phlogistic theory is not without difficulties'.⁵⁹ Even when he appeared most intransigent in his opposition to the oxygen theory, he tempered his support of phlogiston with an open recognition of its epistemic imperfections and its hypothetical nature. Thus, behind the confidently expressed title of his last book on the subject, *The doctrine of phlogiston established and that of the decomposition of water refuted*, Priestley maintained the value and importance of an open-minded evaluation of competing hypotheses. As he told his readers,

Tho the title of this work expressed perfect confidence in the principles for which I contend, I shall still be ready publicly to accept those of my opponents if it appear to me that they are able to support them. Nay, the more satisfied I am at present with the doctrine of phlogiston, the more honourable shall I think it to give it up upon conviction of its fallacy.⁶⁰

Although accumulated evidence forced Priestley into the position of 'contenting myself with the inferior praise of confirming the hypothesis for which I have contended', he insisted, in accordance with his Dissenting sensibilities, that 'the conquest of a man's prejudices is more honourable to him than the discovery, or the most successful defense, of any truth'.⁶¹ It should now be clear that, contrary to the established wisdom, Priestley did not

defend traditional dogma (be it Stahlian or Newtonian) in the chemical revolution, so much as to attack the newly established orthodoxy of the 'French chemists'. Throughout this intellectual upheaval, Priestley sought to emphasize the empirical and conceptual shortcomings of the oxygen theory and to restrict its proper use to the heuristic function of generating new 'facts'.

V

Of the many conceptual and empirical objections that Priestley raised against the oxygen theory, those that relate to his sceptical sense of the limits of hypothetical knowledge and theoretical reasoning are of particular interest to this study. In the first place, Priestley's epistemic sensibilities gave rise to a general sense of unease with the cognitive status of the new chemistry being developed in France:

On the whole, I cannot help saying that it appears to me not a little extraordinary that a theory so new, and of so much importance, overturning everything that was thought to be the best established in chemistry, should rest on so very narrow and precarious a foundation; the experiments adduced in support of it being not only ambiguous, or explicable on either hypothesis, but exceedingly few.⁶²

In this passage, Priestley expressed dissatisfaction not only with the explanatory power of the 'oxidation theory' but also with its epistemic foundations. He argued that, since the experiments performed by 'the Antiphlogistians' were 'exceedingly few', his rivals had failed to supply the 'sufficient number of particulars' required to give the 'general propositions' in their theory the 'proper proof' required by the principles of inductive rationality. The epistemic foundations of their own views were too 'narrow and precarious' to provide a rational justification for their revolutionary aspirations.

Priestley repeated and developed this line of criticism in some comments on Lavoisier's theory of the chemical composition of metallic calces. According to Priestley, Lavoisier's theory of metallic calces had only a 'narrow and precarious' foundation in the single experiment of the revivification of 'red precipitate' of mercury. In this experiment, mercury was first calcined, by the heat of a 'burning lens' in air, to yield 'red precipitate', and then 'revivified' by further heat, to produce mercury. Lavoisier argued that, since the change in weight of mercury during this reaction was equal to the weight of oxygen absorbed and then emitted in this process, the addition of oxygen was the only difference between mercury and its calx. To Priestley's mind, it was this result that had led the 'Antiphlogistians' to presume 'that all metallic calces derive their additional weight from the same cause', and that they are 'all, without exception, oxyds'.⁶³ In response, Priestley registered his nominalist sensi-

tivity to the particularity of nature and to the need for the appropriate inductive basis for such a generalization, with the comment that, 'it by no means follows, that because one calx of a metal owes its additional weight to oxygen, all the rest do'. In contrast to Lavoisier's classificatory theoreticism, Priestley was content to follow the particularity and diversity of sensationalist experience, even if it showed that 'the calces of some metals are, in this and other respects, very different from one another, and even the different calces of the same metal'.⁶⁴ Priestley persistently and forcefully argued that 'finery cinder', obtained by passing steam over iron, was 'a very different thing from the common rust of iron', which was produced when the metal was heated in air. On Priestley's view, these calces of iron contained 'different principles' because, whereas 'common rust' could be analysed according to the dictates of the 'oxidation theory', all the relevant experimental tests indicated that 'finery cinder' contained no oxygen.⁶⁵ He obtained similar results and pursued similar conclusions in his experiments on the calces of other metals, such as zinc and lead.⁶⁶ Priestley's nominalistic sensationalism and his associated suspicion of theorizing also reinforced his dogged opposition to the numerous *ad hoc* hypotheses that 'the Antiphlogistians' used to explain why 'black oxide' (finery cinder) gave none of the usual tests for an oxide. Finally, Priestley formulated his alternative, phlogistic explanations of these observed chemical transformations in such a way as to preserve the perceptible particularities and varieties of things.

Priestley repeated this kind of criticism in his remarks on the experiment performed by Lavoisier and his colleagues on the production of water from an explosive mixture of oxygen (dephlogisticated air) and hydrogen (inflammable air). This experiment was an empirical cornerstone of the oxygen theory and the view that water is composed of oxygen and hydrogen.⁶⁷ However, Priestley was unimpressed by results obtained in this famous experiment:

... it had not been sufficiently repeated. Indeed it requires so difficult and expensive an apparatus, and so many precautions in the use of it, that the frequent repetition of the experiment cannot be expected; and in these circumstances the practiced experimenter cannot help suspecting the accuracy of the result and consequently the certainty of the conclusion.⁶⁸

Elsewhere, Priestley mounted an empirical challenge to the results obtained by Lavoisier and his colleagues. At this juncture, however, he was conducting a methodological assault on the work of his rivals. Since the complexity and duration of the experimental procedure adopted by the 'French chemists' prevent the 'frequent repetition' of their experiment, it was an unlikely source of the kind of 'proper proof' that Priestley's inductive sensationalism demanded for a 'general proposition' concerning the com-

position of water. It followed that conclusions based on this experiment were open to reasonable doubt.

Priestley's associationist view of the passive mind was the source of yet another line of reasoning that undermined the epistemic status of Lavoisier's experiment on the composition of water. This experiment was not only an unreliable basis for a 'general proposition' concerning the nature of water, it was also a dubious source of 'particular propositions', from which the 'general' one was to be derived according to Priestley's inductive sensationalism. In this regard, Priestley argued that the 'French chemists' needed to 'make the experiment in a manner less operose and expensive, requiring fewer precautions, and less of computation', before their results could be 'depended upon'. He further criticized the excessive use of 'computation' and 'allowance' that his rivals used in advancing from the data yielded by their experiment to their final conclusion concerning the nature of water.⁶⁹ Priestley was here referring both to the elaborate precautions that Lavoisier and his associate took to ensure the purity and dryness of the two gases and to the sophisticated apparatus they used to weigh the gaseous reactants, to mix them in a closed, evacuated system and to weigh the water produced from their explosive interaction. He was also objecting to the numerous calculations, and allowances for temperature-changes and impurity-effects, that were required before the reactants and products could be compared in an acceptable demonstration that water was composed of oxygen and hydrogen. Such a complex experimental procedure was alien to Priestley's conception of the nature of knowledge and its acquisition by the passive mind.⁷⁰ 'Real knowledge', as opposed to mere 'opinion', results from the mind's passive reception of 'impressions' and their ordering by the mechanical force of association, acting according to the inductive principles of rationality. Instead of constraining nature to fit a theoretical scheme, we should orientate our minds to the patient and persistent business of passive 'observation and reflection'. For these reasons, Priestley rejected the essential role of reason and analysis in hypothetical discourse, and restricted the domain of the theoretical to generalized descriptions of the phenomena and heuristic guides for the generation of more 'facts'. From Priestley's perspective, Lavoisier's epistemological error lay in his failure to recognize that premature attempts to fit the inexhaustible factuality of nature into neat theoretical schema were not only doomed to failure, but also created unwarranted obstacles to the genuine epistemic progress involved in the proliferation of experimental novelty.

VI

Ultimately, Priestley viewed natural philosophy in relation to his doctrine of the endless progress and perfectibility of human nature. Thus, his contributions to the infant science of electricity were considerably influenced by his

sense of the continual 'rise and improvement' in its 'history and present state' and by the promise, inherent in that process, of extending 'the bounds of natural science' beyond 'what we can now form an idea of'.⁷¹ Similarly, the experimental 'novelty' produced by the newly emergent science of pneumatic chemistry reinforced his conception of the endless progress of human thought in the comprehension of an inexhaustible nature.⁷² Priestley also viewed the theoretical upheavals of the chemical revolution in these terms. Indeed, he insisted that the formulation and critical evaluation of all hypotheses was heuristically valuable for the generation of 'new facts', from which a 'general theory' would be derived sometime in the future. Although 'fallacious', the oxygen theory performed the methodological function of all good hypotheses:

... whether this new theory shall appear to be well founded or not, the advocacy of it will always be considered as having been of great importance in chemistry, from the attention which it has excited, and the many new experiments it has occasioned, owing to the just celebrity of its patrons and admirers.⁷³

These observations supported Priestley's conviction that epistemic progress was contingent upon natural philosophers abandoning their predilection for theoretical speculation and concentrating on the proliferation of 'new facts'. In the final analysis, Priestley's scientific methodology of heuristic hypotheses must be related to his view of the workings of the human mind in the deterministic scheme of things ordained and sustained by God. He made these connections very clear in 1767, when he said,

... when the facts are before the public, others are as capable of... deducing a general theory from them as myself. If but the most inconsiderable part of the temple of science be well laid out, or a single stone proper for, and belonging to it be collected; though at present it be ever so much detached from the rest of the building, its connection and relative importance will appear in due time, when the intermediate parts shall be completed. Every fact has a real, though unseen connection with every other fact and when all the facts belonging to any branch of science are collected the system will form itself. In the meantime our guessing at the system may be some guide in the discovery of the facts; but at present, let us pay no attention to the system in any other view; and let us mutually communicate every new fact we discover, without troubling ourselves about the system to which it may be reduced.⁷⁴

For Priestley, a judicious sense of the limits of our finite theoretical understanding was essential to epistemic progress. Furthermore, given his view of the link between intellectual and moral progress, theoretical scepticism was

also a precondition for the spiritual progress and perfectibility of human beings. Without the balance and perspective of a pious, humble, inductive approach to God's infinite creation, human beings made natural philosophy an end in itself and were consumed by such 'ill passions' as 'vainglory, selfconceit, arrogance, emulation and envy, that are found in the eminent professors of the sciences'.⁷⁵ In contrast, the true philosopher, or sage, should have a humble sense of the limits of our finite understanding and be above 'the envy, jealousy, conceit... and bias', which 'both disgrace the lovers of science, and retard the progress of it'.⁷⁶ The sage could attain happiness and dignity only by abandoning the intellectual hubris inherent in theoretical commitment and by identifying himself, through 'observation and reflection', with the whole order of nature and by submerging his individual interests in this cosmic perspective. However, the 'infinity and inexhaustibility of the divine nature and the divine works'⁷⁷ implied that the process of improvement and enlightenment would never be completed in this life. For this reason, Priestley was of the opinion that natural philosophy was to be pursued 'not so much on account of the advantage we derive from it at present, tho' this is very considerable, as from its being a delightful field of speculation barely opening to us here, and to be resumed with far greater advantage in a future state'.⁷⁸ The continuation beyond the grave of the intellectual and moral ascent of man through the contemplation of an infinite nature was 'a prospect truly sublime and glorious'.⁷⁹

These sentiments were part of Priestley's more general belief in the importance of assigning science to its proper place in human affairs. Moderation was 'requisite in all scientific pursuits'. A person's social and religious duty must take priority unless, as Hartley had warned, we accept the fate of Faust. Temperance must be observed 'else the study of science, without a view to God and our duty, and from a vain desire for applause, will get possession of our hearts' and 'engross them wholly'.⁸⁰ However, approached in the right way and kept in its proper place, the pursuit of natural philosophy had no equal for Priestley,

But when the pursuit of truth is directed to this higher rule, and entered upon with a view to the glory of God, and the good of mankind, there is no enjoyment more worthy of our natures or more conducive to their purification and perfection.⁸¹

Enlightenment and Dissent informed Priestley's view that natural philosophy was subject to some 'higher rule', which was embodied in his recognition of the limits inherent in theoretical reasoning and hypothetical knowledge.

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¹ G.F. Rodwell, 'On the theory of phlogiston', *Philosophical Magazine*, 35 (1868), 29-31. For some other articulations of the whig/inductivist paradigm in Priestley scholarship, see R.M. Caven, *Joseph Priestley, 1733-1804* (London, 1833); F.W. Gibbs, *Joseph Priestley: adventurer in science and champion of truth* (London, 1965); F. Jeffrey, 'Review of memoirs of Joseph Priestley', *Edinburgh Review*, 9 (1807), 137-161; Sir P. Hartog, 'Joseph Priestley', *D.N.B.*, 46, 357-376; A.N. Meldrum and Sir H. Hartley, 'The bicentenary of Joseph Priestley', *Journal of the Chemical Society* (1933); A.N. Meldrum and Sir H. Hartley, 'Joseph Priestley and his place in the history of science', *Proceedings of the Royal Institute of Great Britain*, 26, 395-430; A. Holt, *A life of Joseph Priestley* (London, 1938); O. Lodge, 'Joseph Priestley', *Nine famous Birmingham men*, ed. N. Muirhead (Birmingham, 1909); J.R. Partington, *A history of chemistry*, 4 vols. (London, 1961-1970), vol. III; *Priestley's writings on philosophy, science and politics*, ed. J.A. Passmore (New York); T.E. Thorpe, *Joseph Priestley* (London, 1906); B. Willey, *The eighteenth century background* (London, 1965), 170. For a more detailed analysis and appraisal of this literature, see R.E. Schofield, 'The scientific background of Joseph Priestley', *Annals of Science*, 13 (1957), 148-163; John G. McEvoy, 'Joseph Priestley: 'aerial philosopher': metaphysics and methodology in Priestley's chemical thought from 1772 to 1781', part 1, *Ambix*, 25 (1978), 1-55 (especially 1-5). For a good discussion of the logic and historiographical limitations of inductivism see J. Agassi, *Toward an historiography of science* (The Hague, 1963).

² See J.R. Partington, *A short history of chemistry* (London, 1937), 84.

³ *A scientific autobiography of Joseph Priestley 1733-1804* (Cambridge Mass. 1966), 271-74. For a complete statement of Schofield's interpretation of Priestley's natural philosophy see also *ibid.* 134-37 and 195-97; 'Joseph Priestley, natural philosopher' *Ambix*, 14 (1967), 1-15; 'Boscovich and Priestley's theory of matter', *Roger John Boscovich S.J., F.R.S., 1711-87, etc.*, ed. L.L. Whyte (London, 1961), 168-172; 'Joseph Priestley, the theory of oxidation and the nature of matter', *Journal of the History of Ideas*, 25 (1964), 285-294. (See especially, 292-96); *A scientific autobiography of Joseph Priestley 1733-1804*, 134-37, 195-97, 273-75; *Mechanism and materialism: British natural philosophy in an age of reason* (Princeton, 1970), 269-273.

⁴ 'Chemistry, materialism and theology in the work of Joseph Priestley', *The Price-Priestley Newsletter*, 1 (1977) 32 and 33.

⁵ *Ibid.*, 38.

⁶ For a detailed criticism of Schofield's view see John G. McEvoy, 'Joseph Priestley, natural philosopher: some comments on Professor Schofield's view', *Ambix*, 15 (1968), 115-133.

⁷ This view of a higher spiritual function for science beyond mere knowledge was widespread in eighteenth-century England. The particular expression given to it in the above text was taken from David Hartley, *Observations on man, his frame, his duty and his expectations*, 2 vols. (London, 1749), II, 255. Hartley's views had a profound influence on Priestley's thought in this and other matters. Indeed, Priestley regarded the *Observations on man* with an admiration approaching awe, saying 'that I think myself more indebted to this one treatise, than to all the books I have ever read beside, the Scriptures excepted'. (*An examination of Dr. Reid's inquiry into the human mind on the principles of common sense; Dr. Beattie's essay on the nature and immutability of truth; and Dr. Oswald's appeal to common sense on behalf of religion* (London, 1774), in *The theological and miscellaneous works of Joseph Priestley, LL.D., F.R.S.*, ed. J.T. Rutt, 25 vols. (London, 1817-1831), III, 10. (Subsequent references are to *Works*).

⁸ *An appeal to the serious and candid professors of Christianity*, in *Works*, II, 385.

⁹ See *Disquisitions relating to matter and spirit*, 2nd edn. in *Works*, III, 204.

¹⁰ See *ibid.*, 204 and *A free discussion of the doctrines of materialism and philosophical necessity in a correspondence between Dr. Price and Dr. Priestley* (London, 1778), in *Works*, IV, 143.

¹¹ *Experiments and observations relating to various branches of natural philosophy with a continuation of the observations on air*, 3 vols. (Birmingham, 1779-86), III, xvi-xvii (subsequent references are to *Natural Philosophy*). See also *Letters to a philosophical unbeliever* (Birmingham, 1787), in *Works*, IV, 445.

¹² *Natural philosophy*, III, xvii.

¹³ For a fuller understanding of the interconnection and ramifications of Priestley's system of thought see John G. McEvoy and J.E. McGuire, 'God and Nature; Priestley's way of rational dissent', *Historical studies in the physical sciences* (New Jersey, 1975), VI, 325-404; John G. McEvoy (n.1 above).

¹⁴ See *Institutes of natural and revealed religion*, 2 vols., 2nd edn. (Birmingham, 1782), in *Works*, II, 12-24 and 260-294.

¹⁵ *The doctrine of philosophical necessity illustrated; being an appendix to the disquisitions relating to matter and spirit*, 2nd edn. (London, 1782), in *Works*, III, 455. See also *ibid.*, 449-458.

¹⁶ *The history and present state of electricity with original experiments* (London, 1767), p.xx, (subsequent references are to *The history of electricity*). See also *Works*, III, 506-08.

¹⁷ *Works*, III, 451.

¹⁸ Hartley, I, 82.

¹⁹ *The history of electricity*, p.xx. See also *An essay on the first principles of government and on the virtue of political, civil and religious liberty* (London, 1768), 2-3 (subsequent references are to *Essay on government*); *Works*, III, 451 and 518.

²⁰ Hartley, II, 247-48.

²¹ See *Works*, II, 5-6 and 17; IV, 341.

²² *Natural philosophy*, II, vii-ix and *Experiments and observations on different kinds of air*, 3 vols. (London, 1774-1777), I, vii (subsequent references are to *Air*,).

²³ *Natural philosophy*, II, ix.

²⁴ *Ibid.*, ix.

²⁵ For the fullest statement of Priestley's 'moral philosophy' see *Works*, III (especially 2-24); *Hartley's theory of the human mind, on the principle of association of ideas with essays relating to the subject of it*, 2nd edn. (London, 1790) in *Works*, III, 168-200. A more complete treatment of Priestley's theory of the mind, in relation to the views of Locke and Hartley, can be found in J.G. McEvoy and J.E. McGuire (n.13 above), 348-374. For an excellent discussion of enlightenment epistemology and a framework for Priestley's epistemic thought, see E. Cassirer, *The philosophy of the enlightenment*, trans. F.A.C. Hoeling and T.F. Pettegrove (Boston, 1962), ch. 3.

²⁶ *The history of electricity*, 441-42.

²⁷ *Heads of lectures on a course of experimental philosophy particularly including chemistry, delivered at the New College in Hackney* (London, 1794), 8-9, (subsequent references are to *Heads of lectures*).

²⁸ See 'Observations and experiments relating to equivocal or spontaneous generation', *American Philosophical Transactions*, 6 (1809), 129

²⁹ See *The history of electricity*, 441-42 and *Works*, III, 241.

³⁰ *Works*, II, 15.

³¹ For a much fuller discussion of the connection between Priestley's methodological views and his ontological and epistemological commitments, see John G. McEvoy, op. cit. (n.1 above), especially 30-39.

³² *Natural philosophy*, II, vii.

³³ *Miscellaneous observations relating to education* (London, 1778), p.4. See also *Works*, III, 185.

³⁴ *Works*, III, 125.

³⁵ *Air*, III, xvii. Similar sentiments are expressed in *The history of electricity*, 433; *Air*, II, xx; III, xi and xxvii; *Natural philosophy*, I, iii: II, vii and 325-366. Throughout Priestley's writings the terms 'hypothesis', 'prejudice' and 'speculation' are used interchangeably with synonymous epistemic intent.

³⁶ *Natural philosophy*, III, 400-01.

³⁷ See *Letter to the author of letters on materialism and on Hartley's theory of the mind*, July 1777, in *Works*, IV, 127-28.

³⁸ Dissenting opinion held 'the right to private judgment' and 'the disinterested pursuit of truth' to be inseparable parts of a true and rational religion. It maintained that religious truth 'could only be discovered by individual, candid, rational investigation' (See G.R. Cragg, *Reason and authority in the eighteenth century* (Cambridge, 1964), 259 and M. Fitzpatrick, 'Toleration and truth', *Enlightenment and Dissent*, 1 (1982), 3-31 [especially 29-30]).

³⁹ *Heads of lectures*, p. ix.

⁴⁰ *The history of electricity*, xv-xvi. See also *ibid.*, 574-77.

⁴¹ See *Essay on government*, 127. See also *Works*, II, xvi-xvii.

⁴² *Essay on government*, 137.

⁴³ *Ibid.*, 142. See also *ibid.*, 144.

⁴⁴ *Air*, I, xiv. See also *Essay on government*, 144-45, 156-58.

⁴⁵ *History of electricity*, v-vi. The philosophical foundations of Priestley's work in electricity are explored at length in John G. McEvoy, 'Electricity, knowledge and the nature of progress in Priestley's thought', *British Journal for the History of Science*, 12 (1979), 1-30.

⁴⁶ See *History of electricity*, 574-76. As I.B. Cohen has shown, Priestley's thought gave expression to the 'two Newtonian methods' that dominated eighteenth-century natural philosophy [Franklin and Newton (Philadelphia, 1956), 190]. Many thinkers—including Pemberton, McLaurin, Voltaire and Diderot—were dissatisfied with the awesome image of scientific genius conveyed by the severely 'synthetic' style of the *Principia*. The outcome was a 'series of splendid vulgarizations' (*ibid.*, 123) and an emphasis on the more speculative experimental *Opticks*. Priestley incorporated this pedagogical tradition into his own methodological framework.

⁴⁷ For a full discussion of the influence of Priestley's wider intellectual commitments on his work in pneumatic chemistry, see John G. McEvoy, *op. cit.* (n. 1 above) and *ibid.*, part II, *Ambix*, 25 (1978), 93-115; part III, *Ambix* 25 (1978), 153-175; part IV, *Ambix* 26 (1979), 16-38.

⁴⁸ See, e.g., *Natural philosophy*, II, xii, where he said, 'Details of many experiments will always be tedious to those who look for nothing but general results; but to those who choose to prosecute the inquiries themselves, they will be found absolutely necessary ... My wish is ... to assist future experimenters.'

⁴⁹ For example, in 1786, Priestley prefaced his 'Observations relating to theory' with the following comment: 'The sketch that I shall give will at least serve, like our former theories, to amuse us when we look back upon it, after having gained a more perfect knowledge of the subject.' (*Natural philosophy*, III, 402.)

⁵⁰ For a glimpse of Priestley's growing sense of intellectual isolation among the late eighteenth-century scientific community, see *Experiments and observations relating to the analysis of atmospheric air; also further experiments relating to the generation of air from water... to which are added, considerations on the doctrine of phlogiston, and the decomposition of water* (London, 1796), 36-37 [subsequent references are to *Considerations on phlogiston* (1796)]; *Considerations on the doctrine of phlogiston, and the decomposition of water*, part II (Philadelphia, 1797), 4 [subsequent references are to *Considerations on phlogiston*, part II (1797)]; *The doctrine of phlogiston established and that of the composition of water refuted*, 2nd edn. (Philadelphia, 1803), vii [subsequent references are to *The doctrine of phlogiston* (1803)].

⁵¹ *The doctrine of phlogiston* (1803), xiii.

⁵² *Ibid.*, xiii.

⁵³ *Considerations on phlogiston*, part II (1797), 29. See also p. 27, where Priestley criticized Maclean for accepting the oxygen theory without testing it for himself: 'I wish that Dr. Maclean would repeat this experiment himself, as well as others which are differently related by myself and my opponents. Whatever is asserted by any antiphlogistian he never hesitates to admit; but he makes no difficulty of disregarding anything I assert to the contrary.'

⁵⁴ *The doctrine of phlogiston* (1803), 3.

⁵⁵ The arguments that Priestley advanced, to show that rejection of the 'decomposition of water' entails acceptance of the 'doctrine of phlogiston', related to the very possibility of chemistry. They are scattered throughout Priestley's chemical publications and cannot be considered in the

limited space available here. However, the interested reader may wish to consult chapter ix of my Ph.D. dissertation, 'Joseph Priestley: philosopher, scientist and divine' (University of Pittsburgh, 1976). This material will be developed and published as part of a forthcoming study of the philosophical foundation of Priestley's role in the chemical revolution. See *Joseph Priestley and the chemical revolution, 1783-1804* (forthcoming).

⁵⁶ See, e.g., *The doctrine of phlogiston* (1803), 83, where he claimed: 'If I have proved that inflammable air comes from the *metals*, and not from the *water* in which the solution of them is made, and that water has not been decomposed so that it cannot be proved to consist of two kinds of air, I have done all that is necessary to establish the doctrine of *phlogiston*.'

⁵⁷ Compare F. Jeffrey, *op. cit.* (n. 1 above), 151, where Priestley was praised, 'not, however, on account of the plausibility or ingenuity with which he supported the affirmative part of the argument [for phlogiston], but for the force and precision with which he has brought together the objections which may still be urged against the more popular theory of the French philosophers.' Jeffrey proceeded to list a score or more of Priestley's valid objections to the oxygen theory (151-52).

⁵⁸ *Natural philosophy*, III, 419-420. See also 'Further experiments relating to the decomposition of dephlogisticated and inflammable air', *Philosophical Transactions*, 81 (1791), 222.

⁵⁹ *The doctrine of phlogiston* (1803), 104.

⁶⁰ *Ibid.*

⁶¹ *Ibid.*, xiv-xv.

⁶² *Ibid.*, 103.

⁶³ *Ibid.*, 17-18 and 'Experiments relating to the calces of metals: communicated in a fifth letter from Dr. Priestley to Dr. Mitchell', *New York Medical Repository*, 2 (1799), 251.

⁶⁴ *The doctrine of phlogiston* (1803), 18.

⁶⁵ *Ibid.*, 18-19.

⁶⁶ *Ibid.*, 12-21; 33-39; 43-54.

⁶⁷ See Antoine Lavoisier (with Meusnier): 'Memoire ou l'on prouve par la decomposition de l'eau, que ce fluide n'est point une substance simple', *Memoires de mathematique et de physique de l'academie royale des sciences*, 1781 (1784), 269ff; 'Memoire dans lequel on a pour objet de prouver que l'eau n'est point une substance simple, une element proprement dit, mais qu'elle est susceptible de decomposition et de recomposition', *ibid.*, 1781 (1784), 468ff. For a briefer summary of these experiments, see A. Lavoisier, *Elements of chemistry in a new systematic order*, trans. R. Kerr (Edinburgh, 1790), 91-96.

⁶⁸ *Doctrine of phlogiston*, (1803), 103.

⁶⁹ *Ibid.*, 68.

⁷⁰ For a description of the experimental procedure and apparatus used by Lavoisier and his colleagues in this experiment, see *The elements of chemistry in a new systematic order*, 91-96. Compare this with Priestley's experimental method, as described in 'Experiments and observations relating to the principle of acidity, the composition of water, and phlogiston', *Philosophical Transactions*, 78 (1788), 145-157. See also *The doctrine of phlogiston* (1803), 67, where Priestley contrasts the extreme complexity of Lavoisier's apparatus with the perfect simplicity of his own.

⁷¹ *The history of electricity*, xii-xiii.

⁷² See McEvoy, *op. cit.* (n. 47 above), part III, 156-57.

⁷³ *The doctrine of phlogiston* (1803), 4.

⁷⁴ *The history of electricity*, 579-580.

⁷⁵ *Ibid.*, xxiii, quoted from Hartley, II, 245-46.

⁷⁶ *The history of electricity*, xxi-xxii.

⁷⁷ See n. 17 above.

⁷⁸ *The doctrine of phlogiston* (1803), ix.

⁷⁹ *Natural philosophy*, II, ix.

⁸⁰ *The history of electricity*, xxi-xxii.

⁸¹ *Ibid.*, xxiii, quoted from Hartley, II, 255-56.

JOSEPH PRIESTLEY : THEOLOGY, PHYSICS, AND METAPHYSIC

Robert E. Schofield

Joseph Priestley's first publication—a set of (bad) verses in praise of Peter Annet's shorthand—appeared in 1750, when he was seventeen.¹ 1755, his anonymous review of a translation of the psalms was published in the *Monthly Review*. Then, in 1761, with a book on English grammar and another on the doctrine of the atonement, he began a sustained campaign of writing and publishing which was to end only on his deathbed—where he corrected proofs for a tract comparing the doctrines of heathen philosophy with revelation.² During the forty-three years of his continuing obsession with the power of the printed word, he was to have published, in first editions, more than one hundred and fifty books and pamphlets—many in several volumes—and more than seventy papers and articles, all this not counting letters to editors of newspapers and magazines, written but unpublished sermons, an extensive political, theological, and scientific correspondence, and the continued preparation of new, revised and enlarged, editions of his previously published works. Once his literary output had truly begun, he was to average more than four volumes and two papers or articles a year.

Priestley is, today, best known as a scientist and particularly as a chemist—the discoverer of oxygen and some seven or eight other gases, of photosynthesis and of differential gaseous diffusion, and the die-hard defender of a theory of phlogiston in opposition to the 'correct' oxidation theory of Antoine Lavoisier. Scarcely remembered are his extensive publications in theology and all-but-forgotten are his writings on grammar, rhetoric, history, and politics. Yet it was as a teacher of languages and history that he first achieved recognition and the majority of his country men probably knew him best as the heresiarch of Unitarianism, the person who denied the Trinity, the virgin birth, the sacrificial character of the crucifixion, and the plenary inspiration of the scriptures.

For Priestley, the combination of roles: scientist, teacher, and theologian, was but a single activity, variously displayed and, in fact it is not always possible easily to distinguish his scientific writings from the theological, or his theological works from the political, educational, or metaphysical. Though the combination was not unique for the eighteenth century, many of Priestley's contemporaries wished that he would concentrate his efforts on science and most of his biographers have since written as though, effectively, he had done so.

Now, while *any* attempt to discriminate between these roles does violence to Priestley's conception of himself, this emphasis on his science is *the least* justified by the evidence. He wrote four times as much in theology and religion as in science, politics and education rank second in frequency of his literary concern, and works in philosophy and metaphysics nearly equal in number his published volumes in science.³ Admittedly an item-by-item enumeration is not entirely accurate as a means of assessing relative interests. Nor would a comparison of page-counts suffice, for Priestley himself points out that a paragraph of his scientific writings might easily have required as much time in preparation as 'whole sections, or chapters' of theology or politics took in writing.⁴ It cannot, that is, simply on the grounds of numeration, be concluded that theology substantially outweighed science in his interest. Note, however, that his work in science began only after he was thirty and had already written and published seven books, that his studies on different kinds of air began to appear after he was thirty-nine. Add his declaration that he chiefly valued his scientific writings for the weight they gave his theological opinions and that the greatest recommendation for scientific studies was, to him, their utilitarian tendency, '... in an eminent degree, to promote a spirit of piety, by exciting our admiration of the wonderful order of the Divine Works and Divine Providence'.⁵ Surely we must, at the very least, decide that Priestley the scientist ought not to be considered without consideration of Priestley the theologian.

That statement is, however, no more than a truism if it means only that a biography of Priestley must needs relate to the whole man—though it is a truism honoured more in the breach than in the observance. What requires emphasis is that one cannot understand Priestley *as a scientist* without also investigating his theology, and his metaphysics which links the two. That is the justification for the title of this paper—including the term 'physics' to describe Priestley's science. For though there is a symmetrical neatness of rhetorical balance in this titular setting off of physics against metaphysics, a far more important consideration is the recognition that only when Priestley's science is seen in the context of eighteenth century physical sciences as a whole that the role of his theology and metaphysics in that science can also be made clear.

From the time of Robert Boyle, in the seventeenth century, to the middle years of the eighteenth century, chemistry had been generally regarded as part of natural philosophy—a subject defined for Priestley in his earliest formal study of theology and metaphysics at Daventry Academy as: '... that branch of learning which relates to body, giving an account of its various phenomena, and the principles on which the solution of them depend'.⁶ And during that period, for England particularly, the principles for the solution of phenomena were those of the mechanical philosophy—the motions and

various combinations of the fundamental particles of which all bodies were made. About mid-century, however, chemists began to free their subject from mechanical philosophy and erect it as a separate discipline. Under the influence of Georg Stahl, but responding also to the failure of the mechanical philosophy effectively to address such fundamental questions as the persistence of substances through chemical reaction, a new chemistry was established on a basis of empirically identified substances, their differences, and their interactions. William Lewis, for example, explicitly distinguished between mechanical philosophy and chemical philosophy, which was 'governed by laws of another order', while William Cullen, most famous as the teacher of Joseph Black, told his students that their job was to divide the 'productions of chemistry' into 'their proper classes, orders, genera, species, and varieties as is commonly done with respect to the objects of natural history'.⁷ This was the view of chemistry also represented in the description by Carl Wilhelm Scheele, Priestley's greatest contemporary rival, of the chemist as a discoverer: 'It is the object and chief business of chemistry skilfully to separate substances into their constituents, to discover their properties, and to compound them in different ways'.⁸

Priestley, self-trained in chemical studies and coming to the subject from a very different perspective than that of decomposition, identification, and recomposition, never accepted the taxonomic view of chemistry. 'Chemistry', he wrote, '...and *common mechanics* are very different things; and accordingly we have different *kinds of laws, or rules* by which to express and explain their operations, but they are equally branches of physics [which is to say: natural philosophy]'.⁹ Perhaps this is why Priestley generally avoided the term chemistry in describing his work and even suggested that he was not really a chemist.¹⁰ For Priestley, chemical investigations were but part of a larger scheme in which chemistry, electricity, and optics joined to provide the key, as 'Newton thought,...to other, at present, occult properties of bodies'.¹¹ Now 'occult' has here the meaning of hidden, insensible properties, the internal structure on which the sensible properties depend; but it is also an eighteenth century code-word, representing those forces between ultimate particles of body, such as gravity, elasticity, etc., which Newton had employed as explanations of properties and which his detractors had denounced. Priestley's scientific career commenced, that is, as a Newtonian enterprise to examine the internal structure of matter and its forces. This particular combination of chemistry, electricity, and optics had been suggested to him, in so many words, in the theological-psychological-physiological work by David Hartley, *Observations on man*, which Priestley first read as a student at Daventry Academy between 1752 and 1755, and thenceforth regarded as the greatest influence on his entire life.¹² The general subject of body and force was, however, not then new to him nor was its association in a theological context.

The nature of body and its interactions was as much a problem of philosophy and theology as of science throughout the early part of the eighteenth century. Indeed, ever since the mind-body dualism of Descartes's mechanical philosophy, both philosophers and theologians had struggled to explain how two entities, explicitly defined as exclusionary opposites, might interact with one another. Priestley had early met the problem in Isaac Watts's *Logic*, from which he learned that matter and mind (or spirit) are distinct substances, the one extended, solid or impenetrable, the other capable of cognition. He would also have read, at the same time, a discussion of the problem in John Locke's *Essay concerning human understanding*, where Locke was prepared to entertain the notion that God might enable organized material substance to think—with a reference to Newtonian forces as an indication of unexplained properties of matter.¹³ Later, at Daventry Academy, Priestley relearned the conventional exclusive definitions of body and mind (or spirit) in the theology lectures derived from Philip Doddridge's *Lectures on pneumatology*, but he also there read David Hartley's treatment of sensations acting upon the material substance of the brain and perceptions acting upon the immaterial substance of the mind, each in a parallel associationist train of events linked (probably) by some mediating infinitesimal elementary substance.¹⁴ And, in the Daventry text John Rowning's *Compendious system of natural philosophy*, he would find, reconfirmed, the importance of Newtonian forces as explanation of body interaction, first learned from private reading in 1750 of 'sGravesand's *Mathematical elements of natural philosophy* (London, 1747). Rowning, however, provided the additional information that these forces could not be mechanical, but were immaterial, non-mechanical principles resulting from the continual acting of God upon matter.¹⁵

By the time he left Daventry in 1755, Priestley had acquired a view of the cosmos derived from the Cambridge neo-Platonists and the Newtonian physico-theologians, as summarized in Doddridge's pneumatology and Rowning's natural philosophy: God was the uncreated Being, existent from the beginning, and with Him, as necessary consequences of His existence, but not attributes of it, were space and time. By an act of Divine Will, matter had been created, homogeneous, particulate, and possessing position, extension, and movement. And the constant acting Will of the immanent Creator was manifest in the forceful principles of interaction of those particles of matter, principles deterministically expressed in natural law, describable in mathematical terms, and confirmable by experiment. It was a mark of God's wisdom and contrivance that He should produce so great a variety of effects by so simple and easy a method. Priestley also left Daventry Academy an Arian; that is, he denied that Christ was God, but regarded him as the first creation of God, the father, a separate, but primary spirit, embodied as a man for his earthly mission. The 'Holy Spirit' was to be regarded simply as the effective Will of God or of Christ.

Not for ten years would Priestley apply these views to original speculation or scientific investigation. He spent six unsuccessful years as a dissenting minister and four successful years as a teacher of languages, *belles lettres*, and history at Warrington Academy. During this time, he began to apply Locke's historical and linguistic relativism to a study of the scriptures, Hartley's associationism to literary criticism, and history, as 'philosophy by example'—similar, he said, to the air pump, condensing engine, or electrical machine, which exhibit the operations of nature—to an examination of politics.¹⁶ When he did turn to scientific subjects in 1765, it was in an historical mode, rather than as original research.

His *History of electricity* (London, 1767) does contain some account of Priestley experiments; it contains the first cogent argument for an inverse square law of force between electrical charges—the first quantitative extension of Newtonian force ideas since Newton's own gravitation law and it contains the justification (previously quoted) for combining the study of electricity, optics, and chemistry. The dominant theoretical position of the *History* was, however, that commonly accepted British view of a unique substance, a single electrical fluid, as the cause of electrical phenomena. This was the position recommended by Priestley's advisers on electrical investigations: Benjamin Franklin, William Watson, John Canton, and Richard Price, but it contradicts, at least by implication, Priestley's theological view of homogeneous matter variously empowered.

For the next five years, Priestley continued electrical experiments (expressing, to his friends, doubts of the existence of a fluid of electricity), began some incoherent experiments on gases, and wrote on politics, theology, and perspective while serving also as dissenting minister to a large, liberal, congregation in Leeds. At Leeds, he took the final step to humanist Unitarianism: Christ was not a pre-existent spirit; he was entirely human, though particularly favoured of God, and therefore was an example and demonstration of the power and benevolence of the Creator. During the same period, he discovered the experiments on air described in the Rev'd Dr Stephen Hales's *Vegetable staticks* which were based on the concept of attractive and repulsive forces between particles of air and between these and particles of other matter. He was also introduced to the matter theory of the Abbe Roger Joseph Boscovich, in which the ultimate particles of matter were condensed into geometrical points, with alternating concentric spherical shells of attracting and repelling forces explaining particle interaction and material impenetrability. The combination of these three developments resulted in an exuberance of speculation and research, embodied in two parallel series of publications: *I. Institutes of natural and revealed religion*, 3 vols. (1772, 1773, 1774); *An examination of Dr. Reid's inquiry into the human mind on the principles of common sense* (1774); *Hartley's theory of the human mind* (1775);

Disquisitions relating to matter and spirit (1777); *The doctrine of philosophical necessity illustrated* (1777); *A free discussion of the doctrines of materialism and philosophical necessity* (1778); and a train of later books and pamphlets to defend these arguments. And II. *The history and present state of discoveries relating to vision, light, and colours* (1772); 'Observations on different kinds of air', *Philosophical Transactions* 62 (1772, publ. 1773); *Experiments and observations on different kinds of air*, 3 vols (1774, 1775, 1777); *Experiments and observations relating to various branches of natural philosophy*, 3 vols. (1779, 1781, 1786); and various papers in extension or support of the arguments and discoveries in these. This last series is, of course, that on which his scientific reputation is chiefly based, but thoroughly to understand these works, one must read and understand what Priestley was writing in the books of the first series, which he was producing at precisely the same time.

The three volumes of the *Institutes of natural and revealed religion* were intended for young people, to reconcile religious belief, reason, and science, it being Priestley's conviction that no proposition can be true with respect to philosophy and false with respect to theology, or *vice versa*.¹⁷ To succeed in that reconciliation, he had both to show the religious significance of natural phenomena and to clear the true and rational Christian religion from its accretions of error—its corruptions, as he was later to describe them in his two volume *History of the corruptions of Christianity* (1782). The first volume of the *Institutes* addresses itself particularly to the knowledge of the being and nature of God to be acquired through observation and reason on nature. Priestley's argument is primarily that of design, so popular to the eighteenth century, evidence of design and adaptation in the world demonstrating the existence of a designer. Granting the existence of God, evidences of His admirable contrivances in the universe demonstrate His benevolence and that, in turn, proves the existence of natural law for otherwise man could not plan or live reasonably. But these natural laws, by which matter is governed, attest to the omnipresence of God.

As the matter of which the world consists can only be moved and upon, so all the *powers of nature*, or the tendencies of things, to their different motions and operations, can only be the effect of divine energy, perpetually acting upon them, and causing them to have certain tendencies and effects.

As an example of this fact, Priestley declares that without divine energy the power of gravitation would cease, and the whole frame of the earth would be dissolved.¹⁸

The second and the third volumes of the *Institutes* are devoted to a study of those parts of the 'true' Christian religion which cannot be discerned independently of revelation. Here the problem is the correct understanding of scrip-

ture, stripped of its accretions of subsequent corrupting interpretations and perceived, through historical analysis, independent of misconceptions fostered by unfamiliar language and social context. It was while Priestley was writing these volumes on revealed religion that someone referred him to Scottish Common Sense Philosophy, as described in early volumes by Thomas Reid, James Beattie, and James Oswald. Reading these works, he became so indignant that he produced *An examination of Dr. Reid's inquiry into the human mind*, written with so much asperity that he later felt obliged to apologize for its tone, though not its contents. Priestley's major criticism of Common Sense Philosophy was its assumption of innate ideas, in explicit contradiction of Locke and, he felt, in implicit violation of Isaac Newton's first Rule of Reasoning: we are to admit no more causes of natural things than such as are sufficient to explain their appearances. Priestley claims that Reid identifies as many as twelve distinct inherent principles of the mind, by which man was made aware of extension, space, motion, veracity, the validity of causal relationships, and every other sentiment or belief that he wanted to explain.¹⁸ This 'vain multiplication of explanatory entities' was totally unnecessary, for the associationism of David Hartley provided an explanation, the admirable simplicity of which 'ought certainly to recommend it to the attention of all philosophers, as independent of other considerations, it wears the face of that *simplicity in causes and variety in effects* which we discover in every other part of nature'.²⁰

Priestley's next publication of this series was, naturally, an edition of selected parts of Hartley's *Observations on man*, with the title: *Hartley's theory of the human mind*, to which he prefixed three short explanatory essays. The selections from Hartley were chosen to provide associatist explanations for just those perceptions for which Reid had proposed innate principles, but the introductory essays took off from Hartley's physiological psychology to suggest that human cognitive processes were subject to the same sort of natural laws as were other natural processes. For Priestley, this means a rejection of any body-mind dualism. Partly for reasons of conceptual economy, but also, as it turned out, for theological reasons, he approached explanation of mind and soul in terms of that organization of matter and force by which he attempted to explain all phenomena of the physical sciences. The matter of the brain, he argued, is so organized that its particles retain a disposition to vibrate in the mode in which physical sensation has previously made them vibrate. Thought consists of that revibration and of the combination of vibrations in sensation. In support of this quasi-Hartleian view, Priestley declares that:

...all solid substances seem to retain a disposition to continue in any state before impressed. For this reason a bow of any kind that has been bent, does not restore itself to the same form it had before, but leans a little to the other, in consequence of the spheres of attraction and

repulsion belonging to the several particles having been altered by the change of their situation. Something similar to this *may take place* with respect to the brain.²¹

That 'may take place' produced vehement denunciations of Priestley as a materialist, to which he responded with characteristic argumentative pugnacity, in his *Disquisitions relating to matter and spirit*, with a 'does take place'. In the *Disquisitions*, Priestley combined the theories of Hartley and Boscovich into a consistent argument for the ultimate identity of body and soul which each of these authors would indignantly have rejected. Most of his contemporaries did thus reject the argument, and Priestley was involved in a continuing defence of his 'materialism' through much of the remainder of his life. A close examination of the *Disquisitions* and of the *Doctrine of philosophical necessity*, which forms an appendix to it, will reveal the assembled elements of Priestley's theological and scientific thinking over the previous twenty years. As it was unphilosophic to postulate separate and distinct substances to effect the phenomena of electricity, heat, or light, when different motions and structures of a single homogeneous matter would suffice, so was it unphilosophic to postulate a thinking, or soul, substance when the matter of the brain, suitably organized, might produce thought. True, one could not explicitly describe how material particles might organize to produce thought, but neither could one explain how immaterial particles, in the form of mind or soul, were able to think. And neither could one explain how the substance of a magnet, by its organization, attracted iron.²² Now this argument is not only an attack on body-mind dualism, it amounts to a denial of the existence and natural immortality of disembodied souls; it is also an implicit argument against both Trinitarianism and Arianism. Of course, it grossly offended orthodox religious critics. Priestley's response was curious, and revealing:

... when, agreeably to the dictates of reason, as well as the testimony of scripture rightly understood, we shall acquiesce in the opinion that man is an *homogeneous being*, and that the powers of sensation and thought belong to other arrangements of matter, the whole fabric of superstition, which had been upon the doctrine of a soul and of its separate conscious state, must fall at once. And this persuasion will give a value to the gospel which it could not have before. ... It is in the gospel alone that we have an express assurance of a future life, by a person fully authorized to give it, exemplified also in his own person; he having been actually put to death, and raised to life again, for the purpose of giving us that assurance.²³

Inevitably, this explanation was rejected; clergy of Catholic, Anglican, and Dissenting persuasions found a basis for unwonted ecumenical fellowship in attacks on Priestley as a materialist atheist. That he was not an atheist seems abundantly clear. If he was a materialist, it is only by a stretching of the

ordinary meaning of that term, even though that stretching was deliberately elicited by Priestley with combative iconoclasm. In fact he admitted to one critic: 'I have chosen to say that man is *wholly material*, rather than *wholly spiritual*, though both terms were in my option.'²⁴ And, as he had eliminated every property of matter but its position and its powers or forces, it is fair to agree that if he materialized the spirit, he did so only by spiritualizing matter. Another critic, bewildered by the concept of geometrical points demanded: but 'What is it that attracts and repels, and that is attracted and repelled?' Priestley responded that we can know no more of matter than its properties. This has a modern phenomenalist, even positivist, tone, but actually harks back to the metaphysics which Priestley learned from Locke, Isaac Watts, and at Daventry: 'We can have no conception of any substance distinct from all the properties of the being in which they inhere; for this would imply that being itself inheres...'²⁵ If all those properties of being can be explained by attractive and repulsive forces, then, according to Priestley, these forces alone are sufficient to define body. He defines his theological matter theory as follows: Suppose that the Divine Being, in creating matter, 'only fixed *certain centers of various attractions and repulsions*, extending to, or receding from each other, and consequently carrying their peculiar spheres of attraction and repulsion along with them...' A complex of these centers, placed within one another's spheres of attraction, would constitute a solid body. '... matter is by this means, resolved into nothing but the divine agency, exerted according to certain rules.'²⁶

Now all of this argument relates ostensibly, to theology and not to science. But the theology invokes just those theories of matter and its action which must inevitably form the base for any interpretation of scientific phenomena. That Priestley, primarily a theologian by temperament and profession, could adopt one theory of matter for his theology and another for his science is hard to believe. Yet if his theology and his science are related through a shared theory of matter, the nature of the relationship can be drawn only when direct historical evidence is supplemented by speculation. Priestley's scientific works are written carefully to avoid the suggestion of theory. Indeed, he claims, particularly in his arguments over oxidation with Lavoisians that he merely describes his experiments and their results. Examination of those arguments reveals, however, that the differences in opinion arise from varying interpretations of results, not, basically, from differences in the results themselves. Experiments are always (though frequently inadvertently) the contrived expression of an ontology—a view of the ultimate nature of reality—as interpretations of experiments are the articulation of that ontology. And if we assume that Priestley undertook his scientific work within the view of matter and force described in spiritualized detail in his theology, many of the apparent incongruities of his scientific work are resolved.

Let us examine that second series of publications during the years 1772-1786 from that point of view. The only time Priestley explicitly mentions Boscovich in his scientific writings is in the *History and present state of discoveries relating to vision, light and colours* of 1772. This work, usually known as the *History of optics*, was the least satisfactory of his science books, but it does contain his denial, in a paraphrase of John Rowning's *Natural philosophy*, of the need for a Newtonian aether, which had become the prototype for those separate fluids of light, heat, electricity, and magnetism so popular with Priestley's contemporaries. After an enthusiastic description of Boscovich's theory, he shows how one might use it to explain the production of coloured rings in thick plates for which Newton had employed the concept of the aether.

At the same time that he was writing the *History of optics*, Priestley began, as he said, to take up 'some of Dr. Hales' inquiries concerning air'.²⁷ Hales's work on air, written prior to the appearance of Boscovich's theory but published in a fourth edition in 1769, does not employ the concept of point atoms. It does, however, use that of attractive and repulsive forces at various distances as explanatory principles for pneumatic phenomena and this, clearly, was its major attraction for Priestley. The purpose of his investigations, Priestley tells us in 1777, was the 'exhibiting substances in the form of air,' in order to examine them 'in a less compounded state ... one step nearer to their primitive elements'. Such studies, he had earlier declared, were not 'a business of air only ... but appear to be of much greater magnitude and extent, so as to diffuse light upon the most general principles of natural knowledge... And it will not now be thought very assuming to say that we may perhaps discover principles of more extensive influence than even that of gravity itself...'²⁸

Priestley's mode of experimentation, adapted from that of Hales, characteristically avoids the parameters of mass, which is a measure of amount of substance, in favour of volume and changes of volume, regarded in his day as a measure of elasticity and therefore of interparticle forces. Although he obtains different airs through processes of heating or chemical action, these could, in analogy with Hales's interpretation, be regarded as the result of releasing airs fixed, at attractive distances, within substances and regaining their elasticity by changes to repulsive-force distances. Some of the ambiguity of Priestley's phraseology in describing his experiments begins to make sense in this interpretation. Twice, at least: once in publication in 1779 and again in 1782, he explained the design of some experiments in terms of spheres of attraction and repulsion of particles—those spheres mentioned by Rowning, exploited by Boscovich and used by Hales, and used also by Priestley in his edition of Hartley of 1775 and the *Disquisitions* of 1777.²⁹ A substantial number of his experiments on airs would not, even today, be classed as essentially chemical: the index of refraction or intensity of sound in different

gases, the problem of gaseous diffusion, the comparative heat expansions and thermal conductivities of different gases. Together these problems form part of the subject of transport phenomena studied under the kinetic theory of gases, problems which James Clerk Maxwell, some seventy-five years later, still approached in terms of particles attracting and repelling one another. In this connection, also, Priestley generally held that heat was the 'subtle vibratory motion of the parts' of heated bodies, rather than adopting the contemporary wisdom of a fluid of heat, or caloric.

Priestley was willing to concede that some of the changes in properties of bodies were the result of the 'addition of what are properly called substances, or things that are the objects of our senses'.³⁰ But changes of this sort were clearly not the most interesting to him, nor, one suspects, would he have regarded explanation by such substantial causes as final explanations. In 1793, he wrote that 'the advances we are continually making in the analyses of natural substances into the elements of which they consist, bring us but one step nearer to their constitutional differences, since as much depends upon the mode of arrangement ... as upon the elements themselves'. In 1802, he returned to the same subject: '... a knowledge of the elements which enter into the composition of natural substances, is but a small part of what is desirable to investigate with respect to them, the principle, and the mode of their combination, as how it is that they become hard or soft, elastic or non-elastic, solid or fluid, &c, &c, &c, is another subject ...'³¹ How intriguing—and ultimately frustrating—these 'etceteras' are, for one should so like to know whether they might still include, for Priestley, such questions as how natural substances become electrical, magnetic, acidic—or thoughtful.

In his insistence on the knowledge of the internal structure of substances as clues to constitutional differences, we might easily see prophecies of organic chemistry and stereo-isomerism, were we not aware that it relates instead to a conviction that all substances are ultimately composed of the same homogeneous particles, differently arranged. This conviction had guided him in his early researches, leading to major discoveries; now it was to become the barrier to his seeing any merit in the new chemistry of distinct elements, proposed by Lavoisier. Because Priestley regarded chemical studies as a branch of physics and physics as the study of body in general, he was ultimately unable to see that Lavoisier's work had any terminal significance. For Lavoisier was proposing that explanation of chemical phenomena be vested in the various combinations of a multiplicity of unique substances. Here, in science, Lavoisier was proposing a multiplication of explanatory entities, the existence of distinct elements, for every chemical property whose origin he could not otherwise explain. This was just the approach against which Priestley had so vigorously inveighed in *Scottish Common Sense Philosophy*. Here, in chemistry, was presented the same mode of argument which had produced fluids of electricity, of magnetism, and of heat—which had, indeed,

supported that vitalistic, thinking, immaterial substance of the soul which was one of the 'corruptions' of Christianity he had fought so hard to expose.

Priestley's theology and his science were so intimately interwoven that an attack on his scientific, mechanistic, interpretation of phenomena was necessarily, if inferentially, an attack on his theology. How could he then have accepted as final Lavoisier's chemistry—and how could we, without knowing of the theological connections, have derived understanding of the extent to which Lavoisier's chemistry was a challenge to Priestley's entire world view?

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¹ Joseph Priestley, 'To Mr. Annet on his new shorthand' in Peter Annet, *Expeditious penmanship: or, shorthand improved, &c.* (London, [1750]), 4.

² (Joseph Priestley,) Review: 'A new English translation of the psalms from the original Hebrew ... by Thomas Edwards ...', *Monthly Review or Literary Journal*, 12 (1755), 485-89; [Joseph Priestley,] *Scripture doctrine of remission* (London; 1761); Joseph Priestley, *The rudiments of English grammar, adapted to the use of school ...* (London, 1761). *The doctrines of heathen philosophy* was published posthumously, as were at least three other theological works and at least two scientific papers.

³ The addition of papers published in scientific journals changes these proportions, but the religious articles published in the journal of controversial theology, *The Theological Repository*, which he founded and edited, approximate in number the scientific papers and, if one counted letters to newspapers and magazine editors, those on political and social questions would probably do so as well.

⁴ See Joseph Priestley, *Experiments and observations, relating to various branches of natural philosophy* (Birmingham, 1786) vol. III, ix-x.

⁵ *The theological and miscellaneous works of Joseph Priestley, LL.D. F.R.S. &c.*, edited by John Towill Rutt, vol. I, part 1, 'Memoirs and Correspondence', (New York, 1972, from London edn. of 1831), 200 (hereafter cited as *Memoirs*).

⁶ Philip Doddridge, *A course of lectures on the principal subjects in pneumatology, ethics, and divinity* (London, 1773), 3.

⁷ William Lewis, *Commercium philosophico-technicum, or, the philosophical commerce of arts* (1763) quoted by L. Tengrove, 'Chemistry at the Royal Society of London in the eighteenth century - I', *Annals of Science* 19 (1963), 191-92; Leonard Dobbin, 'A Cullen chemical manuscript of 1753', *Annals of Science* 1 (1936), 138-156.

⁸ Quoted by Abraham Wolf, *A history of science, technology, and philosophy in the eighteenth century*, 2nd edn., revised by Douglas McKie (London, 1952), 358.

⁹ Joseph Priestley, *The doctrine of philosophical necessity illustrated* (London, 1777), 283. For the definition of 'Physicks' as natural philosophy, see John Harris, *Lexicon technicum or an universal English dictionary of arts and sciences* (New York and London, 1966) vol. 1, unpaginated, page signature 5U3v.

¹⁰ The titles he gave his pneumatic studies were usually some variation of 'Experiments and observations on different kinds of air'. In 1795 he wrote a friend, '... though I have made discoveries in some branches of chemistry, I never gave much attention to the common routine of it, and know but little of the common processes;' See *Memoirs*, part ii, 306.

¹¹ Joseph Priestley, *History and present state of electricity* (London, 1767), 502-03, also preface, xii.

¹² David Hartley, *Observations on man, his frame, his duty, and his expectations* (Hildesheim, 1967), I, 352. See *Memoirs*, part 1, 24, for Priestley's praise of Hartley and his influence.

¹³ Isaac Watts, *Logick: or, the right use of reason in the enquiry after truth* (London, 1745), 11-14; John Locke, *An essay concerning human understanding* (London, 1721), 8th edn., bk. IV, ch. iii, notes to para. 6 (vol. II, 140-49).

¹⁴ Doddridge, *Lectures on pneumatology*, 2, definitions IV and V; Hartley, *Observations on man*, I, 33-34, 111-12.

¹⁵ John Rowning, *A compendious system of natural philosophy* (London, 1737-43), passim, espec. Preface, xxxix.

¹⁶ Joseph Priestley, *Lectures on history and general policy* (Birmingham, 1788), 5.

¹⁷ Priestley, *The doctrine of philosophical necessity illustrated*, 2nd edn. (Birmingham, 1782), 255.

¹⁸ Joseph Priestley, *Institutes of natural and revealed religion* 2nd edn. (Birmingham, 1782), I, 35. Note the parallel to a declaration in Doddridge's *Pneumatology*, 53, '... universal gravitation ... always impressed upon it [matter] by the Creator, and ... might at his pleasure be suspended'.

¹⁹ Joseph Priestley, *An examination of Dr. Reid's inquiry into the human mind*, 2nd edn. (London, 1775), 6.

²⁰ Joseph Priestley, *Hartley's theory of the human mind, on the principle of the association of ideas; with essays relating to the subject of it* (London, 1775), xxiv.

²¹ *Ibid.*, xvi, italics added.

²² Joseph Priestley, *Disquisitions relating to matter and spirit* (London, 1777), passim, espec. p. 82; *A free discussion of the doctrines of materialism, and philosophical necessity* (London, 1778), 257-58; note that Priestley here disavows yet another of the imponderable fluids so popular to eighteenth-century natural philosophers, that of magnetism.

²³ Joseph Priestley, *An history of the corruptions of Christianity*, 2nd edn. (Birmingham, 1793), I, 399-400.

²⁴ Joseph Priestley, *The doctrine of philosophical necessity illustrated* 2nd edn. (Birmingham, 1782), 254.

²⁵ Priestley, *Free Discussion*, 19, 20; Doddridge, *Pneumatology*, 2.

²⁶ Priestley, *Free Discussion*, 247-250.

²⁷ Priestley, *Memoirs*, part 1, 112-14.

²⁸ Priestley, *Experiments and observations on different kinds of air* (London, 1777/1776). vol. III, ix; vol. II., vii-viii.

²⁹ Priestley, *Experiments and observations ... natural philosophy*, (London, 1779), 408; letter to Josiah Wedgwood, 8 Dec. 1782, No. 100, in Robert E. Schofield, ed., *A scientific autobiography of Joseph Priestley* (Cambridge, Mass., 1966), 215.

³⁰ Joseph Priestley, *Heads of lectures on a course of experimental philosophy* (New York, 1970, repr. of 1794 London edn.), 4.

³¹ Joseph Priestley, *Experiments on the generation of air from water* (London, J. Johnson, 1793), 38-39; 'Miscellaneous observations relating to the doctrine of air', *New York Medical Repository* 5 (1802), 264-67.

JOSEPH PRIESTLEY AND EDUCATION

Ruth Watts

Although it is as a scientist and as a political radical that Joseph Priestley has won great fame, there is no doubt that he himself thought that his work as a Unitarian minister was the most important activity in his life and that education had an essential part to play in it. Priestley had practical knowledge of teaching through the school he ran at Nantwich, through the Sunday classes he established successively at Leeds, Birmingham and Hackney, and through his work as tutor in languages and belles lettres at Warrington Academy from 1761 to 1767 and as lecturer in history and chemistry at New College, Hackney from 1791 to 1794. He also published much, both on his theory of and on his practice in education.

The three main factors which influenced Priestley's educational outlook were his adherence to Hartleian philosophy, his Unitarianism and his desire to give Dissenters and the industrial and commercial middle class an education both liberal and useful. This paper will examine each of these factors in turn to discover how far and in what ways they affected Priestley's philosophy of education.

As a rationalist theologian Priestley was interested in philosophy, particularly in the philosophy of mind and education. At that time psychology, biology, mathematics and related disciplines were still largely subsumed under the broad heading of philosophy, and, conversely, philosophical questions tended to be treated in the same way as those branches of enquiry which received most contemporary acclaim, namely, physics and astronomy. Philosophers dreamt of using Newtonian techniques, observation and experiment, to formulate a few basic, wide-reaching general laws which would 'transform the present welter of ignorance and idle conjecture into a clear and coherent system of logically interrelated elements'.¹ Thus ignorance, superstition, confusion and unfounded authority could be overthrown whilst a disinterested, courageous and optimistic search after truth would realize Utopia.

No one typifies such thinking more than Priestley. He was influenced not only, like most Dissenters, by John Locke, but also by David Hartley who, Priestley said, had 'thrown more useful light upon the theory of the mind than Newton did upon the theory of the natural world'.² Hartley, influenced by Locke, Newton and John Gay,³ developed a full associationist psychology in his *Observations on man*. He summarized his philosophical position in the following way:

Man consists of two parts, body and mind. The first is subjected to our senses and inquiries, in the same manner as the other parts of the external material world. The last is that substance, agent, principle etc. to which we refer the sensations, pleasures, pains and voluntary motions. *Sensations* are those internal feelings of the mind, which arise from the impressions made by external objects upon the several parts of our bodies. All our other internal feelings may be called *ideas*... The ideas which resemble sensation are called *ideas* of sensation; all the rest may therefore be called *intellectual ideas*. It will appear in the course of these observations that the *ideas of sensation* are the elements of which all the rest are compounded. Hence *ideas of sensation* may be termed simple, intellectual ones *complex*.⁴

Hartley's examination of 'the General Laws according to which the *Sensations* and *Motions* are performed and our *Ideas* generated' led him to postulate a physiological basis to thought. He held that vibrations in the 'white medullary substance of the brain, spinal marrow and the nerves proceeding from them' are the basis of all our perceptions, and that knowledge derives from impressions of external objects upon the senses.⁵ His carefully detailed hypothesis was in line with empirically observed facts, though he himself recognized it as useful rather than as essential to his associationist psychology.⁶ Priestley, indeed, though accepting this hypothesis as probably true, left out all reference to it when he reprinted *Observations on man* in 1775, believing that such a 'difficult and intricate' theory would discourage people from recognizing the value of the rest of Hartley's work.⁷ He was excited, nevertheless, that this theory supported the law of the association of ideas, the cornerstone of Hartleian, and thereby Priestleian, psychology.

Hartley's thesis was that sensations, when often repeated, give rise to ideas and that any series of sensations, if associated with each other sufficiently often get, '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.'⁸

From this Hartley argued that associationism was the basis of Man's mental, emotional and moral life, including:

all that has been delivered by the ancients and moderns, concerning the power of habit, custom, example, education, authority, party-prejudice, the manner of learning, both manual and visual arts...⁹

Priestley pointed out¹⁰ that it was Hartley who had, after a long and close investigation of the matter, perfected the doctrine of association of ideas, attributing all mental affections and operations to this one property:

so that nothing is requisite to make man whatever he is, but a sentient principle, with this single property (which however admits of great variety), and the influence of such circumstances as he has actually been exposed to.¹¹

Hartley himself extended his argument to show how simple ideas, through association (which can be intensified by pleasure or pain), combine and coalesce into complex or 'intellectual ideas', for example, 'beauty', 'honour', to such an extent that it might be hard to discern what the original simple ideas or sensations were.¹² Priestley agreed and illustrated this with the analogy that no one had believed that white was made up of seven different primary colours until Newton had proved this by experiment. Thus he welcomed this analysis of complex and abstract ideas whereby 'our external senses furnish the materials of all the ideas of which we are ever possessed'.¹³

Hartley, however, also believed that complex ideas could, through association, be analysed into their simple compounding parts, and indeed should be, particularly in the case of the 'affections and passions' which were 'no more than aggregates of simple ideas united by association'¹⁴ so that:

we may learn to cherish and improve good ones, check and root out such as are mischievous and immoral, and how to suit our manner of life, in some tolerable measure, to our intellectual and religious wants.¹⁵

This acknowledgement that associations need not necessarily be good ones meant that development could not be left to chance.

Hartley went on to illustrate that ideas, intellect, memory, fancy, affections and will were all:

deducible from the external impressions made upon the senses, the vestige or ideas of these, and their mutual connections by means of association taken together and operating on one another.¹⁶

Priestley agreed that all constituents of the mind are reducible to external impressions¹⁷ and approved of Hartley's definition of the will as nothing but,

a desire or aversion sufficiently strong to produce an action that is not automatic primarily or secondarily... Since all love and hatred, all desire and aversion, are factitious, and generated by association i.e. mechanically, it follows that the will is mechanical also.¹⁸

This particular viewpoint led Hartley and Priestley into the ever recurring debate on free will, a question of some importance since it could determine whether a reader accepted Hartley's thesis or not. Suffice it to say here that Hartley, although accepting that men have some voluntary power over their

affections and actions, denied that there is any philosophical free will, that is, 'a Power of doing different things, the previous circumstances remaining the same',¹⁹ since each action results from the previous circumstances of both body and mind exactly like the effects of other mechanical causes, and since actions proceed from motives and are determined by the strength of them and motives are formed by association.

Although Hartley was troubled by the implications of this extreme necessitarianism, Priestley delighted in the proof that everything has a cause traceable to a First Cause or God, and in the implication that there is a chain of cause and effect terminating in the greatest good of the universe.²⁰

Priestley, therefore, saw the law of association to be the basis of education and of life; his own seemingly instinctive aversion to oaths, inculcated by a very strict upbringing, proved for him that the laws of morality could not be either simple or innate; they would not vary so much if they were.²¹ Hartley had said:

If beings of the same nature but whose affections and passions are, at present, in different proportions to each other, be exposed for an indefinite time to the same impressions and associations, all their particular differences, will at last be overruled and they will become perfectly similar or even equal. They may also be made perfectly similar, in a finite time, by a proper adjustment of the impressions and associations.²²

This gave tremendous importance to environment and circumstance. Moreover, Hartley had shown that all vice and virtue arise from this basic law of association. He had classified seven 'pleasures and pains', the first that of sensation, then six intellectual ones, developing out of each other in ascending or descending order: imagination, ambition, self-interest, sympathy, theopathy and the moral sense, and their counterparts. Optimistically, he believed that the various pleasures predominate over pains and that, through association, men would be led to universal similarity, unbounded knowledge, pure happiness, the love of God and perfect virtue. Part Two of *Observations on man* gave proofs of natural and revealed religion and a prescriptive morality which Part One had given the means to follow.²³ Man's moral development, therefore arises solely from association and to flourish needs due nurture, education and the right environment, not reliance on innate causes or Divine intervention.

Priestley found such conclusions exhilarating: all were shown to be capable of virtue and he was certain that once men realized what means would achieve the good, that is, the use of the law of association, they would turn to proper remedies rather than rely in vain on miraculous assistance.²⁴ Philosophers,

said Priestley, must rejoice to know that the science of the human mind, 'wears the face of that *simplicity in causes*, and *variety in effects*, which we discover in every other part of nature'.²⁵ This 'new and extensive science' of Hartley's opened up a 'new world' affording 'inexhaustible matter for curious and careful speculation'. Thus, 'For my own part, I can almost say, that I think myself more indebted to this one treatise, than to all the books I ever read beside, the Scriptures excepted.'²⁶ Such speculations as Hartley's laid the basis for 'equable and permanent happiness', the great end of all science, more than even,

those branches of knowledge for the advancement of which we are so much indebted to Bacon, to Newton, and to Boyle; and are inferior in their operation to nothing but the study of morals and theology.²⁷

Even though he omitted Part Two as irrelevant when he came to republish Hartley's work in 1775 and 1790, Priestley admired the system of moral and religious knowledge detailed therein and followed its premisses elsewhere.²⁸ He certainly gloried in Hartley's assurances that by the realization of the law of association man is perfectible, even on earth. and that 'children may be formed or moulded as we please'.²⁹ Priestley was hardly unique in holding a moral or religious aim as paramount in education, but through this Hartleian philosophy he believed he had a systematic method of achieving his objective.

Thus Priestley believed education to be a lifelong process, affected by every circumstance and requiring the fullest development of each faculty. The aggregate sensations built up from birth have a such a lasting effect, for:

The influence of *general states of mind*, *turns of thought* and *fixed habits*, which are the consequence of them is so great that too much attention cannot be given to education and the conduct of early life. We, in fact seldom see any considerable change in a person's temper and habits after he is grown to man's estate. Nothing short of an entire revolution in his circumstances, and mode of life, can effect it... Consequently, our happiness or misery for the whole of our existence depends in a great measure, on the manner in which we begin our progress through it.³⁰

Education to Priestley, meant not just intellectual or physical or moral education, but all three together, since they are all, through association, interdependent. For example, he did not think that either intellectual or moral development could or should proceed alone. As he forcefully told the students at New College, Hackney in 1794:

... the greatest branch of intellectual excellence... is *virtue*, or right dispositions of mind, leading to right conduct in life.

For real virtue 'is the result of reflection, of discipline, and much voluntary exertion' and thus is superior to mere innocence or good nature:

as motions secondarily automative are to those that are primarily so; a comparison which you who have studied *Hartley's 'Theory of the Mind'* will see the force of.³¹

Priestley was sure that a healthy body is essential to a sound intellectual and moral development, although he disapproved of 'muscular habits' as not conducive to sensibility of mind.³² His insistence on healthy activities for children accorded with Hartley's hypothesis of vibrations which postulated that the proper development of the rational faculty, and thereby the moral sense, rested on physical causes.³³

Intellectual education is necessary in order for the mind to direct the will aright. Before a person can deliberate instead of merely reacting mechanically to a given situation, a balance of impressions has to be built up. Thus, the more extensive the intellectual powers, that is:

the greater is the number of ideas, and consequently their associations, the oftener will this case of *deliberation* or *suspense* occur... Now it can only be during this state... that we have any opportunity of perceiving and attending to what passes within our own minds; so that a considerable *compass of intellect*, a large stock of ideas, and much experience, are necessary to this reflection, and the knowledge that is gained by it.³⁴

Thus intellectual education is necessary for man to understand his own thoughts, and by using the law of association to direct these aright. Moral culture is dependent on it, for the mind destitute of knowledge is like a field, which if no culture is bestowed upon it, 'the richer it is, the ranker weeds it will produce'.³⁵

The implications of this seemed to be that all people should receive the same, careful, full education and that parents and teachers especially should both understand the law of association fully and be well-educated themselves. Certainly in the case of middle class girls and women Priestley advocated far higher education than was usual. First, since it is education, not sex, that makes us what we are, women are not, as many people would assume, inferior in mental capacity. For example, Priestley praised Robert Robinson of Cambridge³⁶ who gave his daughters the same education as his sons:

...that is, the highest of which they were capable. Getting over a vulgar and debasing prejudice, (that women, being designed for domestic cares, should be taught nothing beyond them) and finding his daughters capable of it, he himself taught them the learned and the modern languages, and he got them instructed by others in mathematics and

philosophy. Certainly, the minds of women are capable of the same improvement, and the same furniture, as those of men,...³⁷

Secondly, since morality and virtue are improved by intellectual culture women have as much right to the latter as men. Priestley deplored the utter subservience of Hindu women for:

when women are considered in this degrading light, and treated in this disrespectful manner, especially as not qualified to read their sacred books, it is no wonder that they are in general very ignorant, and perhaps undeserving of the confidence that is never reposed in them.³⁸

Since women have the same moral duties, dispositions, and passions as men they require a proper education.

Thirdly, Priestley also considered that women need to be well-educated to be good wives and mothers. The respect husband and wife should have for each other in a happy marriage requires that both should have an equal education: the only objection to a man marrying 'beneath himself' is in respect of 'education and manners and not fortune'. If women were well educated, intellectually and morally, then they could have a great and good influence on men, and they would be 'particularly well-qualified to conduct the education of others'. Girls should be educated to maintain themselves respectably. In fact they should be educated for every contingency:

It is of importance, that, when they have leisure they should have the same resources in reading and the same power of instructing the world by writing that men have; and that, if they be mothers, they be capable of assisting in the instruction of their children, to which they have generally more opportunity to attend than fathers.³⁹

Towards the lower classes Priestley was more ambivalent. In spite of the fact that contemporaries saw him as the archleveller and regularly burnt him in effigy,⁴⁰ Priestley though genuinely concerned about the welfare of the poor, was too imbued with individualistic social and economic arguments to seek the logical extension of all of his principles. His statements concerning the education of the poor were often contradictory, but he did see that their lack of education was a great disadvantage. He said that if, 'by some public provision, all the poor should be taught to read and write...honourable ambition...and...a spirit of industry' would be created, and law and order maintained.⁴¹ In his *Lectures on history and general policy* Priestley actually advocates that the state should appoint schools in every district or give advice to each locality on how to establish a school system, for literacy is so important for self-improvement.⁴² Despite this, however, Priestley generally argues against any form of state control in education, afraid that such control would perpetuate one civil and religious establishment, thus denying both parental

and civil rights, and the variety and freedom that is necessary to bring education to perfection:

Education, taken in its most extensive sense, is properly that which *makes the man*. One method of education, therefore, will only produce one kind of men... Uniformity is the characteristic of the brute creation.⁴³

Priestley, therefore, with reservations typical of his class and period, desired an extension of education to all, but particularly to the middle class.

The law of association had further implications, suggesting what should be learnt and how. The latter was most clearly exemplified by Priestley in his course of *Lectures on oratory and criticism*, first delivered at Warrington Academy in 1762, and published in 1777 to illustrate Hartley's principles. Priestley explained in detail and with much illustration from the English and ancient classics, how Oratory, that is, 'the natural faculty of speech improved by art', was a valuable example of the law of association, since recollection, method and style, the first three of its four great objects, depended upon it.⁴⁴ The extensive influence of association in forming the delights of imagination, taste, and indeed, all intellectual pleasures meant that:

Had all minds the very same degree of sensibility, that is, were they equally affected by the same impressions, and were we all exposed to the same influences, through the whole course of our lives, there would be no room for the least diversity of taste among mankind... Every thing that hath a striking or pleasing effect in composition, must either *draw out and exercise our faculties*; or else, by the principle of association, must *transfer from foreign objects ideas that tend to improve the sense*; the principal of which are *views of human sentiments*, of the *effects of the human genius*, and of a *rise and improvement* in things.⁴⁵

These methods invaluable to a speaker or writer are among those which should be used by a good teacher.

Priestley was aware of the dangers of forming biases or misleading impressions through association, as, for example, Thucydides's moving description of the flagrantly unjust invasion of Sicily in the Peloponnesian War.⁴⁶ He wished, accordingly, to keep our ideas and language clear. So he published his *Course of lectures on the theory of languages and universal grammar*, which he had delivered at Warrington Academy in 1762, believing it important to have an,

inquiry into the foundation of that art which is the means of preserving and bringing to perfection all other arts; an inquiry into the extent and application of a faculty which is, to a great degree, the measure of our intellectual powers...

and thereby an inquiry into the nature of language, the greatest distinguishing mark between rational and merely animal nature, between civilized and barbarous nations, and between worthy and less worthy individuals.⁴⁷

He deplored the fact that, although the vernacular was not the vehicle for all kinds of knowledge, it was still not taught in the schools, and agreed with Locke's view that, 'there can scarce be greater defect in a gentleman than not to express himself well either in writing or speaking', and this in his own language.⁴⁸ Priestley, therefore, wrote and illustrated his own *Rudiments of English grammar*, using English terms, not Latin as was still largely the custom; adopting the method of question and answer because it was both the most convenient for the master and the most intelligible to the scholar; and giving profuse, clear examples of the language drawn from modern, light literature, and from customary speech 'the original and only just standard of any language'.⁴⁹ Many of the extracts were from the best English authors and poets, thus reflecting and stimulating the new middle class habit of reading for pleasure, even if, for Priestley at least, such reading should be undertaken for moral rather than for aesthetic reasons.⁵⁰ He received requests from other tutors for advice⁵¹ and thus spearheaded a growing movement for the serious teaching of English.

Priestley stressed that knowledge had to be clear, too. He publicized his own lecturing methods, comprising revision, copious illustrations and varied examples on prepared outlines, and fair or printed copies for the students' use. He advocated reference to the principal authors on both sides of every question in lectures lasting no more than an hour and given to no more than thirty students. He welcomed student questions and observations.⁵²

Similarly, Priestley stressed that, 'No branch of knowledge can be taught to advantage, except in a regular, or systematical method'.⁵³ Thus he carefully classified the periods and different aspects of history, showing carefully the relation of events. At the end of every distinct period he viewed the state of the empires in his own 'Chart of History' and important lives of the time in his 'Chart of Biography'. He was keen on visual aids; for example, he explained the terms of fortification 'by the help of a model of all its varieties cut in wood, to enable Young Gentlemen to understand Modern History and the Newspapers and to judge the progress of a Siege'.⁵⁴ At the same time, in the history course, as in every course he taught, Priestley ensured that his students were shown fully the significance and relevance of their work.⁵⁵ He also spent nine lectures on the various sources of history and thirteen commenting on different historians and the many types of records available. Much of this was particularly apt for the post-sixteen year olds Priestley mostly taught. Priestley was aware that studies should be adapted to the age and capacity of the learner and specifically pointed out in his history lectures that what knowledge was taught should depend on such factors.⁵⁶

Priestley stressed that in all teaching the use of association is the best way to build up understanding. This includes 'natural' digressions and useful allusions. It also requires great emphasis on learning by experience. He insisted that,

As the most effectual discipline of the mind is that of *experience*, it should, by all means, be called in to the aid of precept and admonition whenever it can be applied with advantage.⁵⁷

This reliance on empirical knowledge favours those subjects in which either the subject matter itself or the method of its enquiry is based on experience and inductive reasoning. History is the human science most relevant in this respect and Priestley's introduction of modern history as an academic discipline at Warrington was a revolutionary innovation.⁵⁸ He saw a main use of history as 'anticipated experience', not as striking as personal experience, but more correct and complete. Students learn by example, improve their judgement and understanding, lose their prejudices and realize how many things could be improved. Furthermore, a student would learn not only of human laws and government, but also of the many varieties of human nature.⁵⁹

Similarly, the physical sciences (experimental philosophy in all its aspects) were most congenial to Priestley, the leading chemist of his day. He delighted not only in the results of such subjects but in the methods of study. Whilst at Warrington, he apparently gave some lectures on chemistry⁶⁰ and at Hackney he attempted to bring in as much experimental philosophy as he could, especially 'the whole of what is called *Chemistry*, to which so much attention is now given and which presents so many new fields of philosophical investigation'. He preferred beginners to have only 'a large outline of any branch of science' which they could follow up when they were older if they had the opportunity. He taught a great variety of subject matter in order not to fatigue students, and did as many experiments as he could in the time, at the very least exhibiting 'both the different substances employed in them; and those that were the result of them'.⁶¹

Priestley thus laid great stress on the empirical sciences in education, not only, as will be shown, because of their useful and liberalizing qualities, but also because their methods accorded with Hartley's new science of the human mind and with its educational implications which he himself did so much to try to implement.

Priestley's educational activities, however, were not stimulated by his adherence to Hartleian principles alone. First and foremost Priestley was a Unitarian minister. For him, indeed, Hartley's appeal lay in his offering of a non-mystical scientific explanation of human thought and behaviour which glorified the power of a benevolent Deity and plotted a path for man's

perfectibility. Similarly, the study of history seemed to him to give evidence of Divine providence in human affairs, of the attractiveness of virtue and the progress of mankind, especially with regard to religious understanding.⁶² These optimistic, somewhat disingenuous beliefs, made him certain that once people were properly educated:

The truth of Christianity in general, and that of the great doctrine of it, and of all revelation, *the Divine Unity*, cannot long remain in doubt.⁶³

It was also because he wanted to show the glory of God that Priestley wanted to gain and disseminate knowledge of man's mind and nature. He placed the physical sciences, Hartleian philosophy, and theology in ascending order of importance in the same way as he ranked the law, medicine, and the ministry as forms of employment, according to the scope they give to the intellectual and moral faculties.⁶⁴ Certain that Dissenting ministers were 'much more carefully educated than the generality of clergymen',⁶⁵ Priestley was greatly concerned to reinforce this. Convinced that he and his contemporaries lived on the eve of one of the great revolutions of mankind, comparable to the birth of Christ or to the reformation, he urged the purification and propagation of the Gospel and the study of the evidences of Christianity so that theologians could take advantage of all the new opportunities arising for the spread of rational, religious truth. To ensure the continuance and flourishing of Dissent he wished lay men also to be ready, thoroughly educated and well-versed in the principles of their own religion.⁶⁶

Thus Priestley wished for more religious education not only in schools and colleges, but outside them. Despite his usual urging of open-mindedness and rational belief, he believed that it is vital to build up early associations with God's power and providence in the minds of children. Aware that parents are not always competent to give their children a proper religious education, Priestley exhorts ministers to teach the young of their congregation themselves in Sunday classes. His first published advice on this subject was in the essay preceding his *Institutes of natural and revealed religion* of 1772 to 1774, a decade before the Sunday School movement was initiated by Robert Raikes. Priestley's preoccupation here, however, was not with aiding the poor, but with giving young, middle class, Rational Dissenters the principles of natural religion and the evidences and doctrine of revelation in a regular and systematic course.⁶⁷ He held such classes at Leeds, and extended them at Birmingham and Hackney, successively adding the two classes for those below eighteen, divided according to age and knowledge of the scriptures. He included both sexes and sought to encourage such classes elsewhere. He delighted in teaching the children biblical studies and scriptural geography, using his own catechism with them, (including *A Scripture catechism* which was full of questions, chiefly historical, they could answer by reference to the relevant scriptures), as he used his *Institutes* with the over-eighteens. He

believed that his congregation in Birmingham had become the most informed society in Christian doctrine in the country and that in it 'many young persons of both sexes... are sufficiently qualified to instruct others, and indeed are already in the habit of doing it'.⁶⁸

Priestley therefore revived the habit of separate instruction for the young without the dogma that Rational Dissenters so disliked. The classes he initiated gave a much deeper and wider religious education than the Evangelical Sunday Schools or the Unitarian Sunday Schools for the poor, which indicated that they were intended both for Rational Dissenters and members of the middle classes.

Priestley said that in these classes the stress would be upon 'Christianity itself in any form', that is, God as one being, Christ as a mighty prophet, the resurrection of Christ and the final judgement and resurrection of man.⁶⁹ But though Priestley thought that this would satisfy all Christians, he was mistaken, for, as in many religious arguments, he was taking not only a Dissenting viewpoint, but a particularly Unitarian one. He thought that religion was often perverted and led to many evils including tyranny, superstition, persecution, and oathtaking.⁷⁰ The latter two were, of course, particularly relevant to Priestley since Dissenters were still penalized by statute and Unitarians even more so. Priestley was against established religion of any kind as opposing that freedom of enquiry he and his friends upheld so passionately. He deplored the fact that the universities required from their students an,

absolute subscription to complex articles of faith, which it is impossible they can have studied, and which it is not generally supposed they can even have read.⁷¹

Young minds were thus precluded from rational enquiry, initiated into insincerity and fettered in their powers. Priestley exhorted the students at New College, Hackney to show the superiority of the free system which expanded the mind, for no improvement could take place if the opinions and practices of the majority were imposed upon the rest. Free discussion was 'the only method of collecting and increasing the wisdom of the nation'. There was no need for such freedom to violate law and order, for reason and argument alone could win just rights, a view Priestley maintained through out the counter-revolution of the 1790s.⁷²

Priestley's educational philosophy was also strongly influenced by considering what subjects would be useful to members of the rising industrial and commercial middle class, in which many Dissenters, including the energetic and often prominent Unitarians, were to be found. In 1791, for example, Priestley, declaring that it was the time of 'the new light ... now almost

everywhere, bursting out in favour of the civil rights of men and the great objects and uses of civil government', exhorted students at Hackney College to help obtain,

the flourishing state of science, arts, manufactures and commerce; the extinction of wars,... the abolishing of all useless distinctions,... and a general release from all such taxes and burdens of every kind, as the public good does not require. In short, to make government as beneficial and as little expensive and burdensome as possible.

Let the Liberal Youth be everywhere encouraged to study the nature of government, and attend to every thing that makes nations secure and happy.⁷³

For such reasons Priestley included in the study of history everything which contributed to make a nation 'happy, populous or secure', not omitting the principles of commerce and taxation, all, it must be added, from the viewpoint of the industrial and commercial middle classes. He was aware that trade and commerce had long been confined to the lower orders of society and that many people still considered anything to do with these activities as illiberal, but he was confident that 'the wealth and generosity of merchants have a tendency to change these ideas'.⁷⁴

Priestley stressed free thought, free trade, commerce and social mores, because he wanted students to understand the importance of all these aspects of late eighteenth century middle class life. His concern was for those who, largely because of religion, and partly because of expense, were denied access to the ancient universities; for those who, though growing in financial and commercial power, were excluded from local and national government, and for those whose scientific and industrial interests were scorned by traditionalists. Yet to Priestley and his friends, for example, members of the Lunar Society, such interests and their application were to be the basis of the new Britain. 'Useful' activities would pave the way for a prosperous commercial and industrial country where rank and privilege would give way to those who merited leadership through their services. Priestley pointed out how in his own *Chart of biography*, there were no voids between statesmen, heroes and politicians over the centuries, but there were such voids between men of learning and science until the last two centuries where the fulness of names afforded the noblest prospect of the whole chart.⁷⁵

Indeed, Priestley believed that the great modern improvements in arts had arisen from those in science. Although 'the arts in return, promote society and humanity, which are so favourable to the progress of science in all its branches'⁷⁶ rational and moral beings should remember:

that even excellence in arts that have perceivable limits, contracts the faculties and cherishes the meaner and baser passions of our minds; but that true science, being unbounded in its nature and objects, doth, as it were, enlarge the soul, extend the faculties, and give scope to the most generous affections.⁷⁷

Priestley thus gave the liberalizing and humanizing role in education to science, a view that was to receive little credence in traditional education for many years to come. He held that the time spent on grammar and rhetoric in ancient times had been justifiable because there had been little else to study, but that it was preposterous for moderns to place the same emphasis upon them when the 'sublime studies of mathematics and philosophy lie open before us'.⁷⁸ To him this was where human understanding was at its best:

grasping at the noblest objects, and increasing its own powers, by acquiring to itself the powers of nature, and directing them to the accomplishment of its own views, whereby the security and happiness of mankind are daily improved.⁷⁹

In Baconian fashion, therefore, Priestley depicted the study of nature (including natural history and philosophy), as the most liberal, honourable, happy and successful of pursuits, for the mastery of the powers of nature would increase the wellbeing of mankind and usher in a golden age. Indeed it was the advances in applied sciences such as agriculture, metallurgy, navigation, fortification, and medicine which had brought about the superiority of modern times. Priestley was obviously referring here to the science of these subjects and not to the manual aspects of them which he later termed the inferior arts. Nevertheless he wished gentlemen, particularly those who did not have to train for a profession, to study these sciences. He thought that a taste for experimental philosophy should be acquired quite early, for it could begin at any time, but it should be shown to be a serious study.⁸⁰ He also wished all students to study more mathematics.

Priestley, therefore, following a trend which had developed in the academies, laid great stress on the empirical sciences in education. In scientific developments, Unitarians, not least Priestley himself, played an active part. They were becoming the leaders of the intellectual and radical section of the middle classes and it was as *enlightened* leaders that Priestley wished them to devote their attention to raising both the culture and the status of their own class. He had little concern for the aristocracy, not admiring greatness founded originally on tyranny and conquest, and deploring idleness, frivolity and pride. He did want to see aristocrats better educated; for example, he wanted them to cultivate their lands properly and learn to pay their creditors! But he castigated the immorality of their public schools and the repression of their universities.⁸¹ He preferred middle class Dissenting academies which,

being formed in a more enlightened age, are more liberal and therefore better calculated to answer the purpose of a truly liberal education. Thus while your universities resemble pools of *stagnant water*, secured by dams and mounds, and offensive to the neighbourhood, ours are like *rivers*, which, taking their natural course, fertilize a whole country.⁸²

The latter were institutions,

to which all persons, without distinction, have equal access, and where youth are taught the most liberal principles, both in religion and politics, at much less expense and with far less risk to their virtue than where they are taught, (if with respect to these important subjects they are taught anything at all) the most slavish and illiberal ones.⁸³

To Priestley, a 'truly liberal education' was one which formed 'great and useful characters in every department of life', one which combined literary and scientific excellence with a proper moral development. He considered it no longer sufficient to have only one type of higher education, because it was now realized that many more people than the clergy needed educating if the true sources of wealth, power, and happiness in a nation were to be developed.⁸⁴ For this reason he, like Locke, put the teaching of modern languages before the classics, since almost all valuable knowledge was available in the former, though he recognized that ancient languages had much of use in them and were necessary for intending ministers.⁸⁵

Similarly Priestley had reformed the curriculum at Warrington, thinking it too scholastic for those who would not enter the learned professions but who would, nevertheless, fill 'the principal stations of active life'. His new courses on the study of history, the history of England, and the laws of England, published with his *Essay on a course of liberal education for civil and active life* in 1765, had been designed to give a relevant, useful and liberal education to such youths, though he wished medical and theological students to study them too, for all who were to have any influence in politics should 'be well-instructed in the great and leading principles of wise policy'.⁸⁶ He believed that it is vital for students to understand the principles of the laws of England if they are to fulfil properly their private and public duties, especially with regard to understanding the workings of the constitution and making good laws.⁸⁷ On the other hand, he had little appreciation of aesthetics and the fine arts, and whilst recognizing the importance in education of travel abroad and experience of the world, feared that if a man's habits and principles were not fixed first he would be likely to return a coxcomb or an infidel; Priestley's open-mindedness did not extend to foreign morals or modes of religion.⁸⁸ To help fit students for public affairs, however, Priestley had introduced weekly elocution exercises at Warrington for the whole academy.⁸⁹

Priestley did not anticipate that more than the rudiments of any subject would be taught, for he believed that formal education is a preparation for a lifelong development, but he did stress that it is vital for the middle class to have a positive education to enable them to appreciate the glory of God and rational religion, to promote the arts and sciences which benefit mankind, and to help them to achieve their proper status and rights within the community. Providing such an education is more important than leaving a son wealth more likely to be dissipated than enjoyed. Believing it to be an age in which everything, including public distinction, was beginning 'to be estimated by its real use and value', Priestley envisaged an education which served men not only for their own benefit, 'but for their country and the world', and made them aware that great improvements can only be 'the result of the most peaceable but assiduous endeavours in pursuing the slowest of all processes—that of enlightening the minds of men'.⁹⁰ Nevertheless, in this there was bound to be eventual success:

In fact it is knowledge that finally governs mankind, and power, though ever so refractory, must at length yield to it.⁹¹

Thus it can be seen that Priestley's involvement in education was an integral part of his major preoccupations in life. A liberal and useful education based on the principles and methods of Hartleian psychology was to serve the interests both of rational religion and of the new industrial and commercial classes. Priestley was not alone in these attitudes—his fellow members in the Lunar Society, such as Richard Lovell Edgeworth, Thomas Day and Erasmus Darwin, shared many of them—but his absorption in religion gave his views an extra dimension. Furthermore, he was the popularizer of Hartley whose works he revised and abridged in 1775 and 1790. This book was a great success⁹² and influenced not only the Unitarians, for whom it became a cornerstone of their educational thought, but others, too, especially the Utilitarians.⁹³ In part continuing the eighteenth century Dissenting tradition in education, Priestley anticipated the educational philosophy of nineteenth century Unitarians who, despite the reaction against the French revolution and the fact that they were a small, often despised minority, were to play a large part in educational reform in the nineteenth century.⁹⁴

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- ¹ I. Berlin, *The age of enlightenment* (New York, 1956), 16.
- ² Joseph Priestley, *An examination of Dr. Reid's inquiry into the human mind on the principles of common sense*, 3rd edn., 1769 reprinted in *The theological and miscellaneous works of Joseph Priestley* (hereafter *Works*), ed. J.T. Rutt, 25 vols. (London, 1817-31), III, 25-26.
- ³ See John Gay, 'Dissertation concerning the fundamental principle of virtue or morality' prefixed to William King, *An essay on the origin of evil*, trans. Edmund Law (London, 1731).
- ⁴ David Hartley, *Observations on man* (New York, 1976), Part I, i-ii.
- ⁵ *Ibid.*, iv, 7-72.
- ⁶ *Ibid.*, 416.
- ⁷ Joseph Priestley, *Introductory essays to Hartley's theory of mind*, 1790, *Works*, III, 169, 176-181.
- ⁸ Hartley, 65.
- ⁹ *Ibid.*
- ¹⁰ *Works*, III, 183-4.
- ¹¹ *Ibid.*, 184.
- ¹² Hartley, 75.
- ¹³ *Works*, III, 189-90.
- ¹⁴ Hartley, 368.
- ¹⁵ *Ibid.* 81.
- ¹⁶ *Ibid.*
- ¹⁷ *Works*, III, 184-88.
- ¹⁸ Hartley, 371.
- ¹⁹ *Ibid.*, part II, 53-56.
- ²⁰ *Ibid.*, part I, 511-12; see Priestley, *Works*, III, 532.
- ²¹ *Works*, 195-96.
- ²² Hartley, 82.
- ²³ *Ibid.*, 83, 416-99; part II, 5-337. See also Marsh, 'The second part of Hartley's system', *Journal of the History of ideas*, XX (1959), 264-273.
- ²⁴ *Works*, III, 534-35.
- ²⁵ *Works*, III, 184.
- ²⁷ *Works*, III, 10.
- ²⁷ *Works*, III, 173.
- ²⁸ See *Institutes of natural and revealed religion*, *Works*, II, xxi.
- ²⁹ Hartley, 453.
- ³⁰ Joseph Priestley, *Miscellaneous observations relating to education* (London, 1780), 105-106, (hereafter *Observations*)
- ³¹ *Works*, XXV, 388-9.
- ³² *Autobiography of Joseph Priestley*, ed. J.Lindsay (Bath, 1970), 122-23.
- ³³ Hartley, 391-403.
- ³⁴ *Works*, III, 21.
- ³⁵ *Works*, II, xv.
- ³⁶ A former zealous baptist, converted to Unitarianism by Priestley's writings.
- ³⁷ *Works*, XV, 419.
- ³⁸ *Works*, XVII, 230.
- ³⁹ *Works*, XV, 419.
- ⁴⁰ A. Lincoln, *Some political and social ideas of English dissent, 1763-1800* (London, 1971), 179.
- ⁴¹ *Works*, XXV, 319.
- ⁴² *Works*, XXIV, 223.
- ⁴³ *Works*, XXII, 46-47, 43-44.
- ⁴⁴ *Works*, XXIII, 260, 269.
- ⁴⁵ *Ibid.*, 357, 458.
- ⁴⁶ *Ibid.*, 353.
- ⁴⁷ *Works*, XXIII, 125.
- ⁴⁸ John Locke, *Some thoughts on education* (Heinemann, London, 1964), 209.
- ⁴⁹ *Works*, XIII, 5.

- ⁵⁰ *Works*, XXIII, 317.
- ⁵¹ I. Parker, *Dissenting academies in England* (London, 1914), 116-17.
- ⁵² *Works*, XXIII, 259.
- ⁵³ *Works*, II, xix.
- ⁵⁴ Joseph Priestley, 'The plan of the course of lectures on the history of England', *Observations*, 272-9; *A description of a new chart of history and a description of a chart of biography*, *Works*, XXIV, 477-81, 463-76.
- ⁵⁵ *Works*, XXIV, 4-437; XXIII, 121-251, XXV, 385-391; *Observations*, 272-79.
- ⁵⁶ *Works*, XXIV, 25-437.
- ⁵⁷ Priestley, *Observations*, 6.
- ⁵⁸ See *Works*, XVIII, 517-19; XXIII, 133, 242-43; XXIV, 422-24; and Margaret Canovan, 'The irony of history: Priestley's rational theology', *The Price Priestley Newsletter*, No. 4 (1980), 16-25 for a critical view.
- ⁵⁹ *Works*, XXIV, 29-32, 203, 417-18, and *Observations*, 264-65.
- ⁶⁰ H. McLachlan, *English education under the Test Acts* (Manchester, 1931), 251.
- ⁶¹ *Works*, XXV, 385.
- ⁶² *Works*, XXIV, 422-437, 37-38, 52.
- ⁶³ *Works*, XV, 431.
- ⁶⁴ Priestley, *Observations*, 29-34.
- ⁶⁵ *Works*, XXII, 376.
- ⁶⁶ *Works*, XV, 427-28, 432-34, 436.
- ⁶⁷ Priestley, *Observations*, 86-89, 91-99; *Works*, II, xix.
- ⁶⁸ *Works*, XV, 466, 461; II, xxix-xxx; XXI, 559-567, 573-75.
- ⁶⁹ *Works*, XV, 472.
- ⁷⁰ *Works*, XV, 432; XXIV, 353-36.
- ⁷¹ *Works*, XV, 430.
- ⁷² Joseph Priestley, *Letter to the students of New College, Hackney*, 1791, 7.
- ⁷³ *Works*, XV, 434.
- ⁷⁴ *Works*, XXIV, 200, 313-17, 403-415. Aware of the precariousness of their fortunes, he also advised middle class scions to learn some manual trade. See *Observations*, 138.
- ⁷⁵ *Works*, XXIV, 471-75.
- ⁷⁶ *Ibid.*, 311.
- ⁷⁷ *Works*, XXIII, 491.
- ⁷⁸ *Ibid.*, 490.
- ⁷⁹ *Works*, XXV, 345.
- ⁸⁰ Priestley, *Observations*, 14-18, 35.
- ⁸¹ *Ibid.*, 111-19, 50. He termed grammar schools 'ridiculous', *ibid.*, 51-2.
- ⁸² *Works*, XIX, 128.
- ⁸³ *Works*, XV, 425.
- ⁸⁴ *Ibid.*, 421; XXV, 389; *Observations*, 186-88.
- ⁸⁵ Locke, *Some thoughts on education*, 196; Priestley, *Observations*, 41-6; *Works*, XXIII, 215.
- ⁸⁶ *Works*, XXII, 190, 200, 210-18, 228; *Observations*, xviii.
- ⁸⁷ Priestley, *Observations*, 283-89, 291-96.
- ⁸⁸ *Ibid.*, 57-63, 146-48; *Works*, XV, 422.
- ⁸⁹ McLachlan, 216.
- ⁹⁰ *Works*, XXIII, 255; XV, 439.
- ⁹¹ *Ibid.*, 431.
- ⁹² Following Priestley's condensed version, his friend the Unitarian publisher Joseph Johnson, brought out a second edition of the complete text in 1791, closely followed by a third. By 1834 there had been six editions.
- ⁹³ E. Halevy, *The growth of philosophic radicalism* (Faber, 1972), 7-8.
- ⁹⁴ R. V. Holt, *The Unitarian contribution to social progress in England* (London, 1938), 242-275.

THREE UNPUBLISHED LETTERS OF JOSEPH PRIESTLEY¹

G.M. Ditchfield

Introduction

Like many Rational Dissenters of the later eighteenth century, Joseph Priestley was a prolific letter-writer. Because of his importance as a scientific, theological and political figure, moreover, a higher proportion of his letters found their way into print than was the case with many of his contemporaries. His own words form a vital, if not always sufficient, source of information for those interested in his career. However, his printed correspondence is widely scattered and there is no collected, definitive edition, for which a serious need remains. Hitherto unpublished letters of Priestley can from time to time be expected to appear. This paper proposes to add three further letters of Priestley to the total of those already known. They cover the period 1778-1791 and all were written to his close friend John Lee, the successful barrister, Member of Parliament and Rockinghamite Whig.²

Priestley's friendship with Lee was one of the most enduring of his life. They were fellow-Yorkshiremen and fellow-Dissenters, knew each other as young men and always remained on the best of terms. Lee features prominently and favourably in Priestley's *Autobiography*.³ As their careers diverged into different professions, Lee was able to use his increasing reputation on Priestley's behalf and to place his wide range of contacts at his friend's disposal. It was through Lee that the invitation to Priestley to accompany Sir Joseph Banks on Captain Cook's second expedition was transmitted in 1771,⁴ through Lee's intervention that the offer of a government pension to Priestley was made a decade later⁵ and to Lee that one of Priestley's philosophical works was dedicated.⁶ In addition Lee helped to sustain Priestley and his family in difficult times, notably after his separation from Lord Shelburne in 1780.⁷ Throughout they held the same religious and political views. Even their ages were almost identical.⁸

These letters reveal three stages of their relationship. At the time of the first letter, Lee had not yet entered Parliament, while Priestley was still companion and librarian to Shelburne, residing for much of the year at Bowood and associating with his patron's political followers such as John Dunning, M.P. We may be sure that the talk of 'Politicks' in January 1778 was dominated by America, since news of Saratoga had reached Britain in the previous month. The second letter reflects the temporary tranquillity of Priestley's ministry at the New Meeting House, Birmingham, and shows him in a contemplative frame of mind, surrounded by his growing family and composing his memoirs, the first portion of which he had just completed and

in which he referred to Lee's conviviality in phraseology very similar to that used in this letter.⁹ The third letter was written in the very different circumstances immediately following the Birmingham riots, when Priestley was a virtual refugee in London, without a permanent home and heavily dependent on old Unitarian colleagues, notably The Revd. Theophilus Lindsey. He had not yet been appointed to succeed Richard Price as minister of the Hackney Gravel Pit Meeting, and particularly appreciated those gestures of sympathy, including financial help, which demonstrated the fidelity of such lifelong friends as John Lee.

In the light of this friendship it is reasonable to suppose that a regular correspondence passed between them. That most of it seems lost is perhaps a matter more for regret than for surprise but it nonetheless remains the case that no letter to John Lee appears anywhere in Priestley's correspondence and that the best known collection of the papers of John Lee¹⁰ includes no letters from Priestley. The documents printed here are thus enhanced in value because they are the only letters between Priestley and Lee which are known to survive. There is only one other potential candidate and its claims can be quickly dismissed. H.C. Bolton in his edition of *The scientific correspondence of Joseph Priestley* (1892) prints a letter which Priestley wrote on 13 March 1792 to 'Mr Lee, Attorney at Law, Birmingham' on the subject of his claim for compensation following the destruction of his property in the riots.¹¹ The editor surmises that the recipient was John Lee,¹² but for two reasons this possibility may safely be discounted.

In the first place the advocate who represented Priestley in the pursuit of this claim was the Birmingham attorney Thomas Lee. This emerges clearly from the illuminating survey of 'Joseph Priestley and the Birmingham Riots' by R.E.W. and Francis R. Maddison, where other letters from Priestley to Thomas Lee are printed.¹³ The same article also presents a receipt for the damages finally awarded to Priestley which is signed by 'Thos. Lee. Pltys Atty' on his client's behalf.¹⁴ Internal evidence suggests strongly that the letter published by Mr. Bolton belongs to this context and that it was addressed to Thomas Lee. It was certainly written to a lawyer actively engaged in Priestley's lawsuit.

Secondly, it is highly unlikely that by 1792 John Lee would have been that lawyer. He had no connections with Birmingham—the northern circuit had been his sphere of practice—and was plagued by ill-health. Indeed he was to die shortly afterwards, on 5 August 1793. During the last few years of his life he was confined for long periods to his country seat at Staindrop, Co. Durham, and was rapidly fading from the legal and political scene. He had virtually ceased to practise. Priestley himself had regretfully admitted in 1791 that 'my expectations from him are not what they formerly were',¹⁵ while four years earlier one of Lee's former legal colleagues Beaumont Hotham believed

that Lee 'ought to withdraw himself entirely from the profession' because of his failing health.¹⁶ In the early 1790's the state of relations between Priestley and John Lee was such that the latter could still offer the encouragement of distant succour (which is plainly what Priestley was acknowledging in the letter of 10 August 1791) but not active legal involvement, especially in a part of the country with which he was unfamiliar. These facts effectively exclude John Lee as a possible recipient of Priestley's letter of 13 March 1792.

Accordingly, until further letters can be discovered and authenticated, these three must stand alone as the surviving Priestley-Lee correspondence.

Text

Note: These letters are presented as they appear in the papers of John Lee, D/B0/C 108-110, County Record Office, Durham. Original spelling, punctuation and capitalization have been retained. The letter of 1 January 1778 is slightly torn in the top right hand corner and elsewhere, with the result that four words are wholly or partially missing. However, the sense of the writer is entirely clear in each of these instances and where necessary a reconstruction of the missing words is supplied in square brackets.

Joseph Priestley to John Lee, 1 January 1778. Lee Papers D/B0/C 108.

Dear Sir,

I can do nothing with the in[*closed*] but trouble you with it¹⁷ as I did Mr Coates' fo[rmer] letters. If any thing can be done for him¹⁸ you had better send the account to your nephew who interests himself for him. I should rejoice much if anything could be done for him, as he is a man that I have a very good opinion of, and he has long been in great want.

I have desired Mr Lindsey to ask you whether it would be con[*ven*]ient to you to take me with you to Yorkshire, as you were so obliging as to propose the last year; and if so, at what time you set out, as I mean not [to] be in London but as little as possible this winter.

Till Mr Dunning came, we fully expected the pleasure of your company at Bowood, and I am most disappointed that you have not come. You would have liked the society, for it is a very agreeable set: all *good men and true*. Nothing, however, but *Politicks*, except, last night, I had the pleasure to shew Mr Dunning the first electrical experiments he had ever seen.

With my wife's respects and my own to Mrs Lee & yourself

I am, Dear Sir,

Yours sincerely,

J. Priestley.

Calne, 1 Jan 1778.

Joseph Priestley to John Lee, 13 March 1788. Lee Papers D/B0/C109.

Birm. March 13, 1788

Dear Sir,

I am happy to find, by our common friend Mr Lindsey, that you are returning to town, where I hope to have the pleasure of seeing you, and being happy, as I always have been, in your society. Seldom, if ever, have I enjoyed conversation with so much relish as I used to do on Sunday evenings at your house. Such enjoyments, after the business of the day, and of the week, make life truly valuable. Having, as you will probably think, very little to do, I have been amusing myself with writing a short account of myself and my friends, to be published after my death, and these evenings are not forgotten.

I defer my journey a little hoping to come in a new character, viz. that of *grandfather*,¹⁹ in which I shall probably get the start of you, tho' you are a week older than I am. This is the month in which we are each of us *fifty five*. As we have travelled together so far on the road of this life, I hope we shall join company in a better.

With the great affection, and every good wish, to yourself, Mrs Lee, and your amiable daughter,²⁰ I am,

Dear Sir,

Yours sincerely,

J. Priestley.

Joseph Priestley to John Lee, 10 August 1791. Lee Papers D/B0/C110.

London Aug. 10, 1791

Dear Sir,

I have never failed to find you a friend when friends are most wanted, in time of adversity; and I hope that no adversity in which you have seen me has been brought about in such a manner as to make you repent of your kindness to me. I have reason to be thankful that whenever my troubles have abounded, my consolations, from within and from without, have abounded in greater proportion. What I feel the most just now is my separation from my family, and best friends, with little to do. I have, however, written *An Appeal to the Public on the subject of the riot in Birmingham*, and my son transcribes it for me.²¹ I think to send it to Mr Lindsey at Richmond, if I can find a good conveyance, and he may read it to you at Staindrop. I should be too happy to make one of the party.

With sincere gratitude for this, as for every other instance of your kindness to me, and every good wish to you and Mrs & Miss Lee,

I am,

Dear Sir,

Yours ever,

J. Priestley.

The University of Kent at Canterbury.

¹ The three letters of Joseph Priestley upon which this paper based are located in the papers of John Lee, M.P., in the County Record Office, Durham. I am most grateful to Mr. D. Butler, the County Archivist, for permission to reproduce them here.

² John Lee (1733-93) was M.P. for Clitheroe from 1782-90 and for Higham Ferrers from 1790 to 1793; He was Solicitor-General from April to July and from April to November 1783 and Attorney General from November to December 1783. For a study of Lee's career see G.M. Ditchfield, 'Some aspects of Unitarianism and Radicalism, 1760-1810' (Cambridge Ph. D., 1968), ch. 4.

³ *Autobiography of Joseph Priestley*, intro. by J. Lindsay (Bath, 1970), passim. Hereafter this work is cited as *Autobiography*.

⁴ Joseph Priestley to Richard Price, 5 Dec. 1771; Joseph Priestley to William Eden, 10 Dec. 1771; printed in *A scientific autobiography of Joseph Priestley*, ed. Robert E. Schofield (Cambridge, Mass. and London, 1966), 96-7.

JOSEPH PRIESTLEY IN HACKNEY

Mike Gray

⁵ *Autobiography*, 119.

⁶ *A free discussion of the doctrines of materialism, and philosophical necessity, in a correspondence between Dr. Price and Dr. Priestley* (London, 1778).

⁷ *Autobiography*, 119.

⁸ Priestley's evidence makes it possible to determine the precise date of John Lee's birth. *The dictionary of national biography* merely gives 1733 and Sir Lewis Namier and J. Brooke, *The House of Commons 1754-1790* (London, 3 vols. 1964), III, 26 give ?1733. But in his *Autobiography*, 98, Priestley records that Lee was 'exactly one week older' than himself, and he makes a similar statement in the second letter printed here. As Priestley was born on 13 Mar. (Old Style), it is clear that Lee's date of birth was 6 Mar. 1733, or 17 Mar. (New Style), following the change of calendar in 1752.

⁹ *Autobiography*, 116.

¹⁰ The Lee Papers at the William L. Clements Library, Ann Arbor, Michigan.

¹¹ *The scientific correspondence of Joseph Priestley*, ed. H.C. Bolton (privately printed, New York, 1892), 126.

¹² *Scientific correspondence*, 126, n.1.

¹³ R.E.W. Maddison and Francis R. Maddison, 'Joseph Priestley and the Birmingham Riots', *Notes and Records of the Royal Society of London*, XII, (1956-7), 98-113, especially 107-9.

¹⁴ R.E.W. and Francis R. Maddison, 108-109. A photocopy of this document appears as plate 17 in F.W. Gibbs, *Joseph Priestley, adventurer in science and champion of truth* (London, 1965).

¹⁵ Joseph Priestley to Theophilus Lindsey, 17 January 1791, Dr. Williams's Library MS.12.12, partly quoted in J.T. Rutt, *Life and correspondence of Joseph Priestley* (London, 1831-2), II 98, where the latter is mis-dated 9 Jan. 1791.

¹⁶ Beaumont Hotham to William Eden, 2 Mar. 1787; Auckland Papers, British Library Add. MSS. 34,424 f.134.

¹⁷ The enclosure which presumably accompanied this letter has not survived.

¹⁸ Possibly John Coates (1762-1836) who served as assistant minister at the Old Meeting House, Birmingham, from 1785 to 1801.

¹⁹ Priestley's daughter Sarah, who had married William Finch in 1786, was at this time expecting her first child.

²⁰ Mary Tabitha Lee (1777-1851), Lee's only child.

²¹ The first part of Priestley's *Appeal* was published in November 1791.

Joseph Priestley came to live in Hackney in September 1791, following the destruction of his house and laboratory in Birmingham on July 14th. He lived there until April 1794, constantly in fear of a recurrence of the outrage. He finally decided with reluctance to leave England with his wife and sail for America, where his sons had already settled.

In his *An appeal to the public on the riots in Birmingham* which was published in 1792 he writes, 'having fixed myself at Clapton, unhinged as I had been, and having lost the labour of several years, yet flattering myself that I should end my days here, I took a long lease of my house, and expended a considerable sum in improving it.'¹ His friend Theophilus Lindsey writing to Tayleur in October 1791 says that Priestley was 'very busy in fitting up his laboratory in the house he has taken at Lower Clapton which is a continuation of Hackney and not far from the College'.²

It is possible to establish a more precise location for his house. Documents preserved in the London Borough of Hackney archives enable us to pin-point the site with reasonable confidence. At the latter end of the eighteenth century Clapton was a village of about 1,500 inhabitants, part of the parish of St. John's Hackney, three miles north-east of the City of London. Leaseholders in the parish were obliged to pay a number of local rates (e.g. Church rates, poor rates and lamp rates) and the archives include an extensive collection of eighteenth and nineteenth century year books listing the names of householders and the rate due. Priestley's name first appears in the 1791 book for collecting the lamp rate, where it has been added later against the name of the former occupier, Mr Henry Derritt. The extract which follows is the first page of the Clapton section in the lamp rate book for 1792:

	Clapton	Total	Midsummer	Michaelmas	Xmas	L. Day
6 ³	William Wilson	. 8 9	. 2 2	. 2 2	. 2 2	. 2 2
10	William Young	. 12 6	. 3 1	. 3 1	. 3 1	. 3 1
46	The Revd. Dr. Priestley	2 17 6	. 14 4	14 4	14 4	14 4
20	James Gray	1 5 .	. 6 3	6 3	6 3	6 3
30	Henry Hall	1 17 6	. 9 4	9 4	9 4	9 4
40	Edward Hanson late Lateward	2 10 .	. 12 6	12 6	12 6	12 6
16	Philip Pindar	1 . .	. 5 .	5 .	5 .	5 .
40	Catharina Pindar	2 10 .	. 12 6	12 6	12 6	12 6

70 George Cadogan-
Morgan 4 7 6 1 1 10 1 1 10 1 1 10 1 1 10

A comparison between this sequence of houses and a map of the turnpike road (of which Lower Clapton Road was a section), which marks the houses of some parishioners in 1799, clearly shows that the Clapton section starts at the southern end and on the west side of the street.⁴

The occupation of Priestley's house can be traced forwards and backwards through rates books, local directories and censuses; it is summarized below:

1789 (Church rate)	Susannah Walker
1790 (Poor rate)	Empty (Henry Derritt added later)
1791 (Lamp rate)	Henry Derritt (Priestley added later)
1792 (Lamp rate & poor rate)	The Revd. Dr. Priestly
1793 (Lamp rate & Church rate)	The Revd. Dr. Priestly
1794 (Church rate)	John Felton (purchased lease this year)
1799 (Poor rate)	Miss Ferrell (purchased lease this year)
1817 (Poor rate)	Miss Farrell (spelling changed)
1833 (Poor rate)	Miss Farrell
1849 (Hackney Street directory)	Miss E. Farrell
1851 (Census)	Miss Dorothy Farrell

Miss Farrell is shown as being 84 years old and keeping a boarding-house with 4 servants and 6 elderly lady lodgers. The census entry clearly establishes the position of the house at the south corner of Clapton Passage and the High Street. (Lower Clapton Road)

1867 (Hackney directory)	Walker _ _ _ _ , collegiate school.
1871 (Census)	Samuel L. Walker

Walker is described as a schoolmaster with 3 scholars aged 10, 12, & 14 as boarders. This is consistent with the 6'' O.S. map of 1863 (published 1871) which shows the corner house as a school.

1881 (Census)	apparently empty, awaiting demolition.
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The site now consists of a three story terrace with shops on the ground floor, the house stood approximately on the sites of numbers 111, 113 and 115. A survey made by the Hackney District Board of Works in 1883,⁵ prior to the demolition of the house shows that it stood about 10 feet forward from the present street-line.

The houses of Young, Priestley, Gray, Hall and Hanson all stood on land owned in 1791 by Mary Lateward but it appears that she sold the freehold to Hanson at about the time that Priestley moved in.⁶

The rates books show us that Priestley's local commitments were £46 per annum ground rent, 14s 4d per quarter lamp rate, £1.3s per quarter poor rate and 11s 6d per annum Church rate. The rate books also serve to emphasize how many friends and associates of Priestley lived in the neighbourhood. George Cadogan Morgan, fellow scientist and nephew of Price, lived only a few doors away.⁷ Thomas Belsham had rooms in New College a couple of hundred yards to the east⁸ and Abraham Rees lived in College House nearby.⁹ Samuel Vaughan, father of William and Benjamin, lived in Mare Street about half a mile to the south and next door to John Hurford Stone¹⁰ who soon after Priestley's arrival went to live in Paris. Gilbert Wakefield with whom Priestley debated the importance of public worship, had a house at the southern end of Mare Street near the Dolphin Inn.¹¹ In Upper Clapton lived Price's other nephew William Morgan; Price himself until his death in April 1791 lived in St. Thomas's Square, Mare Street.¹²

Soon after settling in Clapton, Priestley was invited to become minister at the local Unitarian chapel (the Gravel Pit Meeting House). This stood about five minutes walk from his house in Ram Place off Morning Lane. The building has survived several changes of use and today forms the core of a complex of factory units.¹³ It is hoped to erect a commemorative plaque to Priestley, during his 250th anniversary year, on this building; which is probably the only surviving building in London with strong associations with the great scientist and philosopher.

Clapton,

London.

Note: all the sums given in this article have been rounded to the nearest penny.

¹ *Memoirs of the Rev. Dr. Joseph Priestley* (London, 1809), 130.

² Theophilus Lindsey to William Tayleur, 15 Oct. 1791. MS. John Rylands Library, Manchester.

³ Ground rent.

⁴ 'Plan of Hackney Turnpike Road from Shoreditch Church through Hackney to Stamford Hill', 1799. Original in Hackney Archives. A house on the corner of Clapton Passage and Lower Clapton Road is clearly shown on this map, and also in Rocque's map of the parish in 1745.

⁵ Original in Hackney Archives. A photograph showing a partial rear view of the house from Clapton Passage is also in the archives and reproduced in *A second look—a photographic record of a walk through Hackney in the 1890's and today*, (Centerprise, 1975).

⁶ Land Tax year book 1791. Hackney Archives.

⁷ For G.C. Morgan see D.O. Thomas, 'George Cadogan Morgan', *The Price-Priestley Newsletter*, No. 3, 53-70. The Church rate book for 1793 shows G.C. Morgan still paying rates, although *D.N.B.* says that in 1791 'he retired to Southgate'.

⁸ Church rate 1795 entry for the College is as follows:		
150	Revd. Thomas Belcham [sic]	£1.17.6d
42	and for Land	10.6d
40	The Revd. Dr. Rees	10.0d

The College, where Priestley gave lectures on chemistry, was founded in 1786 when a mansion, originally built in the 1720s by Stamp Brooksbank (a prominent Dissenter and M.P. for Colchester), was purchased with 18 acres of land enclosed within a brick wall. Nothing remains of the building which stood approximately at the intersection of what is now Median Road and Dunlace Road. It was demolished in 1802. However a thirty yard stretch of the boundary wall still survives precariously in Coniston Walk by Homerton Row. See Michael Gray, 'The Road with the Radical Past', *East End News*, 4 Sept. 1981.

⁹ Hackney Archives have a detailed plan and description of this house described as 'formerly the abode of Dr. Abraham Rees' when it came up for sale in 1883. The then owner of the house believed that Priestley had also lived there. If he had then it must have been briefly and as a guest of Dr. Rees before he took up occupation of his own house.

¹⁰ Church rate 1792. For J.H. Stone see Alan Ruston, 'Two Unitarians in France during the Revolution', *Transactions of the Unitarian Historical Society*, vol. XVII, No. 1 (Sept. 1979), 15-28.

¹¹ Church rate 1792 and Turnpike map 1799.

¹² Church rate 1789. For Price in Hackney see D.O. Thomas, 'Richard Price's Journal, 1787-1791', *The National Library of Wales Journal*, vol. XXI, No. 4, Winter 1980, 366-413.

¹³ See Alan Ruston, *Unitarianism and early Presbyterianism in Hackney* (privately printed, 1980), 26.

JOSEPH PRIESTLEY AT THE GRAVEL PIT CHAPEL, HACKNEY: THE COLLIER MS.

Alan Ruston

As those with an interest in Dr. Joseph Priestley will know, his last Unitarian Ministry in England was at the Gravel Pit Chapel, Hackney from 1791 until he left for America in 1794. In his autobiography he refers positively to the pleasant, if occasionally difficult, time that he spent living in Clapton, talking with friends and serving the congregation. After the burning of his home and laboratory by a mob in Birmingham in July 1791, Priestley was pressed by his congregation there to return but this was clearly impossible. He eventually decided that it would be safest and best to stay in the London area. He gravitated to Hackney because of his long standing connections with Dr. Richard Price who ministered there, and the presence of the Dissenting Hackney College with which he identified. Each April he made a visit to London in order to relieve the aging and infirm Dr. Price in his pulpit duty. He had therefore arranged to preach at Gravel Pit Chapel, Hackney on 1 May 1791. But on 19 April, Price died and Priestley was one of the six ministers who carried him to his grave in Bunhill Fields. Thus his address to the congregation was a memorial service for their late minister. 'For the most amiable simplicity of character, equalled only by that of Mr. Lindsey, a truly Christian spirit, disinterested patriotism, and true candour, no man in my opinion ever exceeded Dr. Price.'¹ When it was clear later in the year that Priestley intended to live in a house found for him in nearby Clapton by John Wilkinson, the congregation of the Gravel Pit invited him to become their minister. However a sizeable proportion—F.W. Gibbs estimates it to have been a quarter²—opposed the move 'on the grounds that with Priestley and the college in the vicinity there might be further civil disturbances'.³ Others expressed doubts about the invitation in that Priestley represented a strong and assertive Unitarian theological position as opposed to Price's milder Arianism, a change which might drive the older members away. However the majority (or a group of the most powerful and dynamic members) won the day and Priestley began his ministry at the Gravel Pit on the first Sunday in December 1791.

I wrote in a previous *The Price-Priestley Newsletter* that the records of Gravel Pit Chapel for the 1790's had been lost.⁴ J.T. Rutt made some use of the missing Minute Books when assembling Priestley's correspondence, as he includes both the letter of invitation from the congregation to succeed Price, dated 7 November 1791, and Priestley's letter of acceptance in his edition of Priestley's theological and miscellaneous works.⁵ Although there has been no reference in print to the existence of the Minute Books since 1900, they were

available to the officers of the congregation in the late nineteenth century, as extracts were made from them in 1873 by Frederick Collier, the then Treasurer. Consisting of seven pages in neat and clear handwriting, these extracts are a transcription of all the references to Price and Priestley found in the Minute Books of the time. They were completed by Frederick Collier at his home (Gothic Hall) at Stamford Hill on 16 April 1873,⁶ and subsequently found their way into the collection of MSS. at the Unitarian College at Manchester and are now on permanent loan to the John Ryland's University Library of Manchester.⁷ Being a secondary MS., a copy of a copy, and therefore liable to vary from the original, it was not seen as particularly important, nor referred to in publications for until my researches into the records of the Gravel Pit the nature and extent of the extant Minute Books was unknown. Now that it must be recognized as the only available source of some of Joseph Priestley's correspondence, it deserves wider attention, and in this article I set out in full the material that is new and unrecorded elsewhere.

The first item refers to Price and states that he was 'elected Minister 3 January 1770', thereby adding to and confirming the detail contained in my 1980 article in the Newsletter on the date of commencement of his Ministry at Hackney. Following a resolution of 1 May 1791 to ask Priestley to print his Funeral Sermon on Price, the content of the letter of invitation is given. It is in complete agreement with the text contained in Rutt,⁸ except that the last signatory is shown as James Spurrell, not Joseph Spurrell.

Priestley's letter of acceptance is given both in Rutt and in the Collier MS., and it would appear that Rutt went in for some editing. The following is a copy of the Collier MS. in full, with the sections not in Rutt italicised.

'To the Committee of the Congregation of Protestant Dissenters of the Gravel Pit Meeting, Hackney

My Christian Friends

After having been driven by violence highly disgraceful to the Government under which we live from a situation on every account most pleasing to me and my connection with one of the most flourishing and respectable congregations in the Country being thereby broken. I think myself happy and honoured by an invitation to succeed *though only in part* my most valued friend and your late excellent pastor the Reverend Dr. Price.

I trust however that as you cannot wish to give two persons an absolute control over each other's conduct who are not predisposed to act in perfect concert you will not fail to give particular attention to this circumstance in the choice of my Colleague.

My only wish is to have it in my power to exert myself most effectively *and of course without obstruction* to what appears to me *to be* the proper and most important duties of the pastoral office especially in the particular attention that I wish to give to the youngest part of the Congregation according to the plan that I pursued at Leeds and Birmingham.

With my best wishes and prayers for our mutual edification and happiness. I am My Christian friends,

Your very humble servant

J. Priestley

Clapton 12 November 1791

P.S. If there be no objection on the part of the Congregation I shall have none to beginning my Ministry on the last Lords Day of the present month.

Clearly Priestley was concerned about the idea, which was mentioned in the letter of invitation, of having a co-pastor, and Rutt decided to leave out the passage which referred to it. The Collier MS. is without doubt the correct version as subsequent events on the election of a co-pastor demonstrated. Rutt was an accurate transcriber but he wished to show his old friend in the best light. The reference to fear of 'obstruction', which in the event did not happen, in the co-pastor relationship, appears perhaps to picture Priestley as being difficult and possibly unreasonable. What this example of Rutt's editing indicates is that if his text has to be relied upon as the basis of a central idea for an article or a thesis, the researcher would be wise to consult the original MS., if it is available, to confirm the contents.

The question of the co-pastorship was really the only difficulty that arose during Priestley's short ministry at Hackney, and the Collier MS. differs from The Rev'd Thomas Belsham's account of what happened. After the letter of acceptance, the next items in the Collier MS. are:

Minutes 27 November 1791

That the Reverend Dr. Priestley be waited upon by the Chairman to request him to begin his Ministry next Sunday morning

Minutes 9 December 1791

That Dr. Priestley be requested to print the sermon delivered to the Congregation upon the commencement of his Ministry among us.

Minutes 26 February 1792

Election of Co-Pastor

41 votes in favour of Mr. Belsham—22 against him

Minutes 19 May 1792

That the Reverend Dr. Priestley be desired to take upon him the office of sole pastor and that the Reverend Mr. Maurice of Yarmouth be invited to be the afternoon preacher. Passed nem con.

Dr. Herbert McLachlan mentions this controversy in 'The Old Hackney College, 1786-1796':

When in 1790 George Cadogan Morgan was not called to succeed Price at the Gravel Pit, but was passed over in favour of Priestley, he severed his connection with the College. Subsequently a coolness arose between Rees and Belsham when the former failed to support his colleague's candidature for the position of co-pastor with Priestley. The candidate elected was Michael Maurice, father of F.D. Maurice, and a former pupil of Rees first at Hoxton and then at Hackney. The situation was the more complicated as the students were members of the chapel, and did not vote for their tutor, although they had the grace not to vote against him.

In the diary published after his death Thomas Belsham presents his version of what happened:¹⁰

The year (1792) opened with very flattering prospects. The situation I should have chosen for myself, had I been permitted to choose, would have been that of colleague with Dr. Priestley. Of this I was given to understand there was a very reasonable and almost certain expectation, at the commencement of this year; but *** very unexpectedly opposed, and my election was lost by one vote.

The Collier MS. gives an entirely different view showing that Belsham was elected by a clear majority and in those days Nonconformist ministers would accept a call to the ministry of a church or a chapel on a majority of only one even if it meant a split in the congregation. As he was elected sole pastor to succeed Priestley on 23 March 1794 what could have caused Belsham's non-appointment at this time? Priestley had no objection to having a co-pastor—Samuel Blythe was his colleague at Birmingham from 1780—and he clearly wanted Belsham appointed. But the congregation, according to Priestley, thought differently, requiring an Arian as co-pastor to balance his Socinianism, so Maurice was made afternoon preacher.¹¹ Priestley's *Autobiography* mentions the frequent intercourse he had with Belsham when living in Clapton, allowing him to spend 'my time more happily at Hackney

than I ever had done before'.¹² Thus the affair did not affect the relationship between the two men.

But the main part of the Collier MS. is Priestley's letter of resignation to the Congregation and their reply. Neither listed nor noted elsewhere to my knowledge, these two letters are now set out in full, together with the concluding section of the extracts from the Minute Book (which apparently commenced in 1742). Although not altering to any significant degree our knowledge of Priestley at that time, they are a useful addition to the store of Priestley material. They bring out especially the nature of the attitude of the congregation who in the main were very supportive of the work and actions of their pastor. No further commentary on the text is necessary, except to point out how brave and courageous the leaders of the congregation were in appointing Priestley in the first place, a fact which he fully acknowledges in his letter of resignation.

Minutes 5 March 1794

A letter from the Reverend Dr. Priestley to the Treasurer having been produced and read and which is as follows

Clapton, 21 February 1794

My Christian Friends,

After spending little more than 2 years with you I find it expedient to leave you but you will believe me when I assure you that this resolution is not occasioned by any complaint that I have to make with respect to you on the contrary it was singularly generous in you to receive me when you did, driven as I was by violence from a favourite situation and likely from the prejudices of the times to bring suspicions on any congregation that should make choice of me.

I have been happy to find that though many as on several accounts was natural objected to the conduct of the majority and left the Society your members are not on the whole diminished and especially that contrary to the expectations of most I have found a sufficiently ample field for usefulness in the classes of young persons who have attended my lectures.

These I leave with peculiar regret having had peculiar satisfaction in my attention to them and in their improvement in religious knowledge many of them I doubt not being well qualified to instruct others. I hope that in your choice of a successor to me in which I pray for your best direction their interest will not be neglected more substantial good I am from long experience well persuaded being done in this way than in the best discharge of any part of the Ministerial duty.

Distant as is the country to which I find it expedient to remove I shall always rejoice to hear of your welfare both as men and as a Christian Society but infinitely happier will it be if our conduct in life be such as shall secure our meeting when the wicked will cease from troubling where all prejudices and misunderstandings that disturb the harmony of Christians here will vanish and where we shall never be separated from one another any more.

I am my Christian Friends

Your affectionate Pastor

Joseph Priestley

P.S. As the time of my departure is uncertain tho' not far distant I cannot fix any particular time for the dissolution of our connection but I hope no great inconvenience will arise from this degree of uncertainty.

The following reply was prepared and read

Hackney, 9 March 1794

Revd. and dear Sir

We have received with extreme concern the Communication of your intention to resign your pastoral office in the Congregation a connection from which we had promised ourselves a great degree of benefit and happiness and which our short experience has very abundantly justified.

Whatever are the circumstances which have induced you to think of removing it is some consolation to find that it is not owing to any complaint to which we have given occasion on our side since you are pleased to bestow more praise on our conduct than is its due.

We shall always reflect with the highest satisfaction and with real gratitude on your public services among us and on none more than your establishment of lectures to the different classes of young persons convinced as we are that the most important advantages are likely to be derived to the rising generation from this institution we shall be careful to keep this great point in view in the choice of your successor.

In lamenting the separation that is about to take place between us we feel particularly concerned that your removal is to a Country so distant as wholly to cut off our personal intercourse with you. But we trust that providence intends by this event to open to you a scene of greater

usefulness and it is this consideration which better reconciles us to the great loss which we ourselves are likely to sustain.

Remote as may be the situation to which you find it expedient to remove our hearts will go with you and our affections will still embrace you and nothing will afford us greater comfort than to hear of your happiness and increasing means of doing good. If the attachment of those with whom you are about to live is at all in proportion to the regret of those whom you are about to quit you will have a sure pledge of future satisfaction. We can take no merit to ourselves in having been ambitious to receive you into this Society at a time when persecution raged against you since we consulted herein both our duty and best interests but it gives us the deepest regret that it was in this Country that you should suffer for the freedom of well intentioned inquiries on subjects respecting which every man is bound diligently to search for truth and on which no man can assume a right to think for his neighbours. Without free discussion truth cannot be ascertained and it is the absence of free discussion which can alone perpetuate error.

Unable to deny the propriety of your retiring from a scene of things where you can promise for yourself so little comfort or perhaps even safety we are at least bound to bear testimony to your irreproachable Conduct and to the patience with which you have endured your sufferings at the same time we must lament the stigma which our nation will have brought upon itself both with Europe and with posterity for having forced one of the first of men of Christians and of philosophers to seek in a Foreign Country an asylum from the insults and injuries which he had experienced in his own in the pursuit of religious truth.

In the pleasing hope of a happy and indissoluble union hereafter to which time cannot put an end we remain with every sentiment of gratitude and esteem, in behalf of the Congregation.

Revd. and Dear Sir

Your respectful and sincere friends and
fellow Christians

being the members of)	Benjn Travers ¹³
a Committee deputed)	Saml. Vaughan ¹⁴
for the purpose by)	Pickbourne ¹⁵
the Congregation)	Thos. Rickard
)	Benjn Vaughan ¹⁶
)	Johnston ¹⁷
)	Robert Manning ¹⁸
)	G.L. Mackmurdo ¹⁹

Minutes 23 March 1794

Mr. Belsham elected successor of Dr. Priestley

Thanks to the Revd. Dr. Priestley and the Revd. Mr. Lindsey for their present of books to the Library.

Minutes 30 March 1794

Thanks of the Society to Dr. Priestley for his Sermon this day and that he be requested to print the same.

Minutes 13 April 1794

One hundred Guineas presented to Dr. Priestley from the Congregation.

The above seven pages extracted from the Minute Book of the New Gravel Pit Meeting, Hackney

Stamford Hill, 16 April 1873

Fredk Collier
Treasurer²⁰

Alan Ruston,

Oxhey,
Watford,
Hertfordshire.

¹ *Autobiography of Joseph Priestley*, ed. Jack Lindsay (Bath, 1970), 98.

² F.W. Gibbs, *Joseph Priestley* (London, 1965), 211.

³ *Ibid.*

⁴ 'Price and Priestley at the Gravel Pit, Hackney', *The Price-Priestley Newsletter*, No. 4 (1980), 26-29.

⁵ *The theological and miscellaneous works*, ed J.T. Rutt, 25 vols (London, 1817-32), I, part II, 170-71.

⁶ Frederick Collier (1813-1884) was 'one of the oldest and most widely respected members of the Hackney congregation... emphatically a man of business... he was all his life a great reader... He was a member of the Presbyterian Board, sitting for many years as a manager on behalf of the Hackney Congregation. He was also at one time a member of the Committee of the British and Foreign Unitarian Association, and latterly one of the Vice-Presidents of that Association. He was a Deputy-Lieutenant of the City of London, and occupied many other positions of trust and influence.' See his obituary in the *Inquirer*, issues of 29 Nov. (p. 770) and 6 Dec. 1884 (p. 779). The Collier family were connected with the Congregation for most of the 19th century.

⁷ Reference D. 61(3), Joseph Priestley MSS., Unitarian College Collection. I am indebted to Mr. Mike Gray of Hackney who originally brought my attention to the MSS., and to the University Library for making photocopies available to me.

⁸ See n. 5 above.

⁹ *Transactions of the Unitarian Historical Society*, vol. III, part 3 (1925), 202.

¹⁰ John Williams, *Memoirs of the late Reverend Thomas Belsham* (London, 1833), 445.

¹¹ Joseph Priestley to Michael Maurice, letter dated Clapton 25 Aug. 1792, in Unitarian College Manchester Collection, and printed in the *Transactions of the Unitarian Historical Society*, vol. VI, no. 2 (1936), 165-66:

I was very desirous of having Mr. Belsham for my colleague, and I think it not a little extraordinary, that a man of his excellent character, ability and experience, should be rejected by a congregation who at all approved of me... The only unpleasant circumstance respecting your invitation, which affects you full as much as it does me, is that the principal reason alleged against the choice of Mr. Belsham is that it is too much for the congregation to have two Socinian ministers, and that the Arian part of it ought to be accommodated with a minister of their own way of thinking... To yourself, personally considered, I have no more objection than I had to Mr. Blythe at Birmingham, who also was an Arian, and with whom I was perfectly happy; but I own I do not like the idea of any person being chosen professedly as an Arian, since it must be intended as a counterbalance to my influence, and a check upon me, and as a kind of obligation on yourself to continue what you are now.

¹² *Autobiography*, 130.

¹³ Benjamin Travers appears first as he was the Treasurer of the Congregation at the time (1791-96). The family were long connected with the Gravel Pit and a pedigree is shown in *Chronicles of Cannon Street*, a house history of Joseph Travers & Son, published circa 1953.

¹⁴ Samuel Vaughan, a relation of Benjamin Vaughan (see below), and active in Unitarian and political circles.

¹⁵ The Revd. James Pickbourne (1735-1814), who kept a school at Hackney for a period, was Librarian at Dr. Williams's Library. He was treasurer of the Chapel, 1796-97.

¹⁶ Benjamin Vaughan (1751-1835), the eldest son of Samuel Vaughan (d. 1802), a wealthy London business man, was educated at Warrington Academy, when Priestley was a tutor there, at Cambridge, at the Inner Temple, and at Edinburgh, where he studied medicine. He was occasionally employed by the Earl of Shelburne on whose behalf he took an active though unofficial part in the peace negotiations with the Americans after the War of Independence. In 1792 he became M.P. for Calne, but he did not remain in Parliament for long. In 1794 for political reasons he deemed it wiser to retire to France, and in 1798 he returned to the family estate in America where he spent the remainder of his life.

¹⁷ There is little doubt that this is Ebenezer Johnston (1748-1826), later treasurer both of the Chapel and of the Unitarian Book Society.

¹⁸ Robert Manning, Treasurer of the Chapel, 1798-99.

¹⁹ E.L. Mackmurdo (d. 1817) was Treasurer of the Chapel 1797-98. His family were members of the Congregation well into the 19th century.

²⁰ The MS. is on separate unlined sheets of paper, tied in the top corner with ribbon, each measuring 320mm. by 200mm. Throughout, Collier uses no commas, though there are several shown in the same letters quoted by Rutt.

Priestley's Polemic against Reid: An additional note

Alan P.F. Sell

Re. *The Price-Priestley Newsletter*, III, 1979, p. 41 para. 1 and note 4:

A collection of original papers by Reid was gifted to the University of Aberdeen Library in 1980. An interim summary list of the papers is now to hand (MSS.3061/1-26). They contain numerous references to Priestley, and one of them (MS 3061/24) is an untitled and undated address to an unnamed society. Reid here seeks to show 1. 'That there are some philosophical Opinions, subversive of Materialism, which Dr. Priestley either adopts, or treats more favourably than a zealous and consistent Materialist ought to do'. 2. That having professed to rest his defence of materialism on Newton's principles of philosophizing 'he gives so lame and so erroneous an account of Newton's Rules of philosophizing as might tempt one to think that he never understood them, nor entered into the Spirit of them'. I am grateful to Mr. Colin A. McLaren, Archivist and Keeper of Manuscripts, University of Aberdeen Library, for drawing my attention to these papers.

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Trevor H. Levere, *Poetry realized in nature: Samuel Taylor Coleridge and early nineteenth-century science* (Cambridge University Press, Cambridge, 1981), pp. xiii + 271.

Nearly two decades have passed since Thomas McFarland eloquently argued that scholars must pay serious attention to Coleridge's philosophical thought. In *Coleridge and the pantheist tradition* (Oxford, 1969) he also identified a major theme in Coleridge's intellectual development as the search for a unity between internal and external experience. However, McFarland dismissed Coleridge's scientific writings believing that they 'were based merely on interest, and, doubtless, a certain amount of egotism' (p. 323). In the volume under review Trevor Levere follows McFarland in seeking unity within Coleridge's thought but includes science within this unity which comprised also philosophy, theology and poetry. Science, Levere argues, was far more important to Coleridge than previous commentators have been prepared to recognize. Of course, Coleridge cannot be transmuted into the positivists' vision of a scientist, slaving long hours in a laboratory; nevertheless he can legitimately be located in the history of 'natural philosophy', an area inhabited not only by Kant and Whewell, but also by Davy and Faraday. In this sympathetic treatment Coleridge emerges not as an incompetent amateur pursuing zany ideas but as a serious natural philosopher. His uniqueness lies in his independence of thought rather than in his natural philosophical activity *per se*; few other early nineteenth-century British natural philosophers seriously discussed Kant and fewer still dismissed Newton's science as the science of 'little things'.

Levere shows that from the mid-1790s Coleridge began to criticize aspects of British science and soon came to reject not only the whole programme of Newtonian science but also Locke's theory of mind; the first denying activity to nature, the second to mind, while both led to atheism. He subsequently found in German literature—in Kant, Schelling, Steffens and others philosophers of nature more conducive to his own philosophical and theological position.

In his early adult years, especially, Coleridge was in close contact with dissenters, and it is well known that he was impressed by the rationalism, necessitarianism and optimism of both Hartley and Priestley, and by the latter's interest in civil and political liberty. Although he read some of Priestley's natural philosophical works and Hartley's *Observations on man* Coleridge appears to have eschewed the physical thought of either writer. Indeed, he subsequently rejected both Hartley's associationism and his ether theory and Priestley's theory of 'spiritual powers'. Coleridge's early mentors in science were Thomas Beddoes, Erasmus Darwin and Humphry Davy. Davy's work on chemistry and electrochemistry fascinated Coleridge who viewed it as manifesting an organic power in nature and as refuting

mechanism and philosophical materialism. For similar reasons Coleridge was attracted to Beddoes's science and also shared his political enthusiasm. However, Levere argues persuasively that Coleridge's greatest debt to Beddoes was his initiation of Coleridge into German philosophy (including natural philosophy) which launched him on a new and highly productive intellectual quest.

In analysing Coleridge's 'science' Levere initially concentrates on its philosophical presuppositions, including the poet's views about empiricism, causality, classification, symbolism and the theory of ideas. Coleridge's theories of chemistry, physics, geology and the life sciences are then comprehensively reviewed. These areas have not previously been adequately analysed in the secondary literature and it is to Levere's credit that while his discussion is always clear he does not trivialize or oversimplify Coleridge's highly complex views.

Historians have often tended to dismiss Coleridge as an unoriginal thinker. As far as physical theorizing is concerned he certainly drew extensively from Davy and the German *naturphilosophen* and yet, as Levere admirably demonstrates, he remained his own master; the writings of other natural philosophers were of value principally as resources to help him resolve his own problems. But what precisely were those problems? As far as the philosophical ones are concerned Levere offers detailed insights. His analysis of Coleridge's theology is, by comparison, more sketchy; we are, for example, told (p.1) that 'Trinitarian Christianity came to provide a unifying logic' for Coleridge's system of thought but this theme is not developed in later chapters. Some readers may also be disappointed that Levere does not draw Coleridge's science and poetry closer together. Such criticism excepted this is an enjoyable, perceptive study and a major contribution to Coleridge scholarship.

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B.J. Tysdahl, *William Godwin as Novelist* (Athone Press, 1981), pp. 205. £5.95.

Recent work on Godwin has filled out our biographical knowledge, given us a clearer sense of his ethics and social philosophy and placed his work of the 1790s in the context of English Jacobinism. While these areas still provide much scope for useful work, we can reasonably claim that others are in more urgent need of examination: the overall range of his fiction, his theory and practice as a historian and the progress of his religious/metaphysical views. One might summarize B.J. Tysdahl's achievement in his new study by saying that he adds much to our understanding of the fiction, offers some insight into Godwin's conception of historiography and helps us in the difficult task of connecting Godwin's early religious thought with his career as a novelist.

The study offers insights in terms of scholarship, criticism and philosophical analysis. First, it usefully digs out buried or forgotten material; second, it provides patient and thoughtful studies of the main narratives; and third, it relates the novels to developments in Godwin's general world-view. In each case the relations of Godwin to his eighteenth century heritage are explored and, of particular interest to readers of this journal, his journey into and out of enlightened dissent is illuminated. Godwin's progress through Socinianism and atheism on the route from Sandemanian super-Calvinism to Coleridgean pantheism may be unique: but it tells us much of general interest about the complex connections between Dissenting religion, radicalism and Romanticism at the end of the eighteenth century.

Tysdahl's excavations among the early works show the Dissenting heritage mingling uneasily with other traditions. He is the first critic to offer discussion of the apparently lost *Damon and Delia*, written in ten days towards the end of 1783 and recently rediscovered. In this first work Godwin is seen trying on the clothes of a very different eighteenth century mode, in a broad satire that feebly echoes Fielding and Smollett. But this turned out to be a false start. Godwin's breakaway from Sandemanianism was not to be towards a yeasaying hedonism but towards a scrupulous re-working, in secular terms, of conflicts suggested by his theological training. This study shows how the last of his early novellas, *Imogen* (1784) echoes Milton's *Comus* in celebrating the triumph of chaste virtue and restraint of the senses, while shifting the context from a Christian to a humanist one. There is a sense in which Godwin, in his concern for the struggles and temptations of the lonely individual soul remains an eminently Protestant writer even when he can no longer be called a Christian one.

For many readers, however, the real test of *William Godwin as novelist* will be the adequacy or otherwise of its response to *Caleb Williams*, a fact acknowledged by the author who devotes much his longest chapter (around

fifty pages) to it. Here we are given an extended discussion of the controversy as to whether the novel should be seen in a primarily political, or a primarily religious, context. Should we read *Caleb Williams* as the directly political book its close association with *Political Justice* would seem to suggest? Or should we consider it more in its relation to theological issues such as salvation, damnation and God's treatment of mankind? Recently, Marilyn Butler in *Essays and criticism* has vigorously and cogently shown how crucial is the context of the 1790s to the book's meaning. Tysdahl, against more fanciful modern critics, agrees with this need to relate the book closely to Godwin's political and ethical purposes at the time, yet he also argues for the metaphysical resonances of the narrative. Taking advantage of recent theories of reading, he tries to show how shifts in our initial expectations of the book may validly affect our ultimate reading of it: more than one perspective is possible, and this is a state of affairs we can come to terms with rather than attempt to abolish.

So those critics who claim that Falkland is more than a representative of an unjust and hierarchical power-structure, that his character hints both at omnipotent Godhead and diabolic deception, do have a case. Their mistake does not lie in suggesting this further dimension but in not relating it closely to its historical context. Tysdahl, on the other hand, continually reminds us of the specific nature of Godwin's own religious formation, which surfaces in Caleb's attempts to trace the meaning of his experience through prophecy and sign: 'It is as is foreboded. The presage with which I was visited was prophetic. I am now to record a new and terrible revolution of my thought and mind.' (*Caleb Williams*, ed. McCracken, 312).

Passages such as this, with their suggestions of doomed, impotent struggle might reasonably be seen as an extension of Sandemanianism: Caleb's good works can have no effect on the deliberations of the power that controls his and everyone's fate. At other times, though, a startlingly different theology is invoked. The protagonist's dedicated search for truth, his belief that knowledge and the good are ultimately one, that to uncover *Things as they are* (the novel's alternative title) can only lead to a better world, surely recalls the most optimistic aspects of rational Dissent. Behind this aspect of *Caleb Williams*, as behind *Political Justice* itself, lies the positive assurance of Joseph Priestley on these points, although the truth that will be revealed for Godwin will of course be different from Priestley's. Ultimately, though, it is not the separate presence of these strands in the novel that gives it force but their dramatic interaction, their presence as elements in Caleb's reaction to his experience. The novel's second ending in particular twines them inextricably. Optimistic, because Caleb and his search for truth have been vindicated in public? Pessimistic, because Caleb calls himself the murderer of Falkland and claims that he can never be vindicated in his own eyes? Tysdahl's merit is to show that

we need not feel forced towards an either/or response to such genuine ambiguities in the novel.

It is a commonplace of criticism that after *Caleb Williams* Godwin's fiction becomes more 'Romantic', that after the brief joy of his relationship with Mary Wollstonecraft recounted in his *Memoirs*, we find an increased stress on the role of women, on sensibility, landscape, domestic affection etc., above all on the role of feeling in moral judgements and decisions (the famous fire case haunted Godwin through much of his later career). This study usefully reminds us that these new elements in Godwin's work were in fact often developments of earlier eighteenth century thought and specifically links the later fiction to a more Humean view of ethics.

The study of the later novels is sympathetic but generally avoids special pleading for works written in adverse circumstances. *St. Leon* is seen as bringing Godwin's religious and political heritages into uneasy conflicts, rather than as focusing both in the same chain of events as *Caleb Williams* does. On a more positive note, larger claims are made for the psychological subtlety of *Fleetwood* and its relation to the eighteenth century novel of sensibility are suggested. *Mandeville* is then praised for its use of contemporary debates on the subject of madness and for its attempts to fuse psychological precision and historical accuracy, while the last novels *Cloudesley* and *Deloraine* are by contrast seen as the products of failing imaginative power. Even here, though, Godwin's preface to *Cloudesley* offers us interesting hints for the interpretation of his whole fictional output, with its stress on the mysterious springs of human action: 'The folds of the human heart, the endless inter-mixture of motive, and the difficulty of assigning which of these had the greatest effect in producing a given action, the desire each man has to stand well with his neighbours, and well with himself, all render the attempt to pass a sound judgement upon the characters of men to a great degree impossible'. In fact, Godwin goes on to assert that the novelist, who invents his own characters, can trace motives out of formative experience and ruling passions, and has thus the advantage over the historian who must deal with much more fragmented evidence. Yet arguably it is precisely the combination of exactitude and uncertainty, of rational analysis and unpredictable development that gives Godwin's psychology its unique richness of texture.

Inevitably, certain points are not so fully developed as others in this study. More on the language of the novels would have been of interest, particularly since Tysdahl's occasional comments on this are very penetrating and throw particular light on the accusations of turgidness sometimes made against the novels. Then again, the discussion of the Gothic mode in relation to *St Leon* seems to underestimate both the possibilities of this sub-genre as a tool for psychological enquiry and Godwin's general debt to it.

That the study gives rise to such further reflections is, however, part of its merit. The good Godwin critic needs to be able to respond closely to a complex text but also to be broadly read in the theological, philosophical and political controversies of the later eighteenth and early nineteenth centuries. B.J. Tysdahl shows that he can do both these things and (not less important) that he can do it in such a way as to be equally valuable to the Godwin scholar and to the undergraduate discovering *Caleb Williams* for the first time.

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