SCIENCE AND RELIGION

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The relationship between science and religion has a long and complex history. In the nineteenth century it was marked by the evangelical revival and the diffusion of natural theology, the rise of liberal Anglicanism and movements of secular or alternative religion, including positivism and agnosticism, spiritualism and theosophy. Key debates engaged the new sciences of geology, biology, physics and anthropology: the age of the earth, the nature of matter, the progressive development of life, the antiquity of ‘man’ and his place in creation, and the origins of mind and morality. Such debates were often entwined with programmes of reform or implicated in struggles over the production of knowledge, the leadership of social organizations, the curricula of universities and schools, authority in the periodical press and other popular forms of print and the role of science in public life.

Divergent approaches and frameworks have structured scholarship in this broad field. Influential early works characterized the nineteenth century as a period of gradual secularization, involving a ‘crisis of faith’ and the eventual dominion of a naturalistic world view (Chadwick; Himmelfarb; Houghton). Such accounts frequently drew upon conflicting models of science and religion that had been forged in polemical debates of the Victorian period. As Thomas Huxley wrote, ‘Extinguished theologians lie about the cradle of every science as the strangled snakes beside the bed of Hercules’ (556). Appearing in a review of The Origin of Species in 1860, these words advanced an aggressive secular version of Darwinism that became a fixture of later narratives (Draper, White 1896). Men of science stood opposed to biblical literalism and Christian apologetics. Scriptural geologists and clergyman-naturalists defended the Genesis story of creation and the flood, the beneficent design of nature and the special providence of ‘man’. Like the Catholic officials who supposedly refused to look through Galileo’s telescope, their success was only temporary. Geology triumphed over Genesis, apes over angels (Gillispie; Greene; Irvine).

In the 1970s and 1980s, as the history of science underwent a social turn, the conflict between science and religion was recast in terms of class struggle and professionalization. Science became an ideological weapon of radical artisans and industrial middle-class Dissenters as they vied with Anglican elites for political rights, social status and cultural authority (Desmond; Young). Clergymen contended with men of science who sought autonomy from religious traditions and institutions (Turner). At the beginning of the nineteenth century, the Anglican Church had a virtual monopoly in government, education and the most prestigious professions. Parliament
and other political offices, together with degrees from the ancient universities, required subscription to the Thirty-Nine Articles of the church. Entry to the upper ranks of medicine and law was in turn largely restricted to university graduates. In the absence of paid positions in science, a number of practitioners were clergymen by profession. Cambridge and Oxford professors were ordained and some held clerical livings and gave parish sermons. Anglican control was not monolithic, but only in the 1820s and 1830s did opposing parties gain sufficient influence to implement changes. The admittance of Roman Catholics and Dissenters to government (1828–9, 1835) and the creation of the non-sectarian London University (1826) were among the first substantial reforms of Anglican hegemony.

The sciences played a role in challenges to the authority of the church and its divinely ordained hierarchies. Radical London publishers issued cheap reprints of materialist medical works, like William Lawrence’s *Lectures on Physiology, Zoology, and the Natural History of Man* (1819), condemned as blasphemous by the Chancery Court for its dismissive remarks upon the soul and vital matter (Ruston). Comparative anatomy and zoology provided grounds for social transformism that threatened the order of ranks and the control of science and medicine by exclusive corporations such as the Royal Society and the Royal College of Physicians (Desmond). In the *Views of the Architecture of the Heavens* (1837), the Scottish astronomer and political economist John Pringle Nichol composed a cosmic narrative of progress, stretching from the origins of the universe in a gaseous nebula to the present state of society and beyond. Future generations would see the abolition of ‘unnatural’ laws that fixed grain prices in favour of idle landowners, and church rates that siphoned wealth from the poor and labouring classes (Schaffer).

Cosmic progress had to be secured against such radicalism. During this volatile era of reform, the sciences were enrolled in more moderate and conservative programmes, designed to stem the tide of democracy, popular enthusiasm and irreligion. Pringle’s nebular hypothesis was condemned by Cambridge dons and Royal Society fellows, such as William Whewell and John Herschel. In his *A Preliminary Discourse on the Study of Natural Philosophy*, Herschel presented scientific theory as the work of rarefied genius, elevating the mind and spirit above the material (and political) world. Pedestrian platforms of improvement were mass-produced by steam press publishers, such as the Edinburgh firm of William and Robert Chambers (the later author of the evolutionary epic *Vestiges of the Natural History of Creation*). Their weekly *Journal* featured digests of politics, literature and the advancements of science. In 1835, the firm issued a people’s edition of George Combe’s *Constitution of Man*, an expansion of his earlier *Essays on Phrenology* (1819), a science of character based on the form and function of the brain. Though potentially radical, Combe’s phrenology demonstrated God’s design in the self-regulation of man, including a special organ of the brain for religious devotion. It was rapidly taken up by Christian readers as an aid to good living (Secord).

Central to this more conservative regime of science and religion was natural theology. The classic work in the field by William Paley depicted nature as God’s handiwork, wrought with beautiful contrivances such as the lens of the eye, deep structures of organization and development and universal laws of matter and force. Despite the philosophical critiques of Hume and others in the previous century, natural theology endured because it drew together a wide range of increasingly technical research in newly formed disciplines of geology, zoology, physics and chemistry and set them within a common Christian framework, embedding the sciences in Anglican institutions of learning (Brooke 1991). Paley’s book was reprinted many times, extracted and expanded with new scientific illustrations by authors like Henry Brougham, a Whig politician and education reformer, who envisioned natural theology as the crowning synthesis in a system of universal knowledge. A series of lavish treatises was funded by the Earl
of Bridgewater, with leading experts in natural history, philosophy and medicine commissioned to detail the wisdom and beneficence of God as manifest in Creation (Topham).

Some evangelicals worried that natural theology weakened the authority of revealed religion and, especially in the aftermath of the Napoleonic wars, that it could be a mask for (French) deism. For a Christianity centred on fallen man, the malignancy of sin and salvation through Christ’s atonement, Paley’s beautifully ordered system could seem too complacent (Hilton). Natural theology had to be carefully presented so as to complement or reinforce revelation. In geological circles, Georges Cuvier’s work on fossil mammals, with its arguments for serial extinction and the progressive development of life on earth, were presented as supportive of Genesis. William Buckland, appointed to the first readership in geology at Oxford, described creatures like *Megatherium* (the giant sloth) as an ‘apparatus of colossal mechanism . . . calculated to be the vehicle of life and enjoyment to a gigantic race of quadrupeds . . . imperishable monuments of the consummate skill with which they were constructed’ (1836:1:164). Buckland aligned the fossil record with biblical chronology by inserting millions of years of earth history before the Genesis story began. He used geological science as a tool of exegesis, deepening readers’ understanding of biblical events such as the flood, emphasizing the sublimity of nature’s forces.

Through dramatic descriptions of fossil forms and catastrophes of deep time, geology claimed a place beside other grand spectacles of science in the early Victorian period – astronomical shows, panoramas, chemical and electrical demonstrations, museum collections – all of which revealed the wonder and order of God’s creation (O’Connor). Gentlemen practitioners such as Michael Faraday and Richard Owen demonstrated the power of science to manipulate matter and force, to determine the place of an organism in the system of creation, to divine nature’s laws and unity of plan. Faraday combined public feats of electrical experimentation at the Royal Institution with private acts of virtue and charity, living according to the principles of Sandemanianism, a movement of primitive Christianity that had emerged from Scottish Presbyterianism in the eighteenth century (Cantor). Owen made his reputation as the British Cuvier by reconstructing the first dinosaurs and other giant creatures, such as the Moa, an extinct Australian land bird whose form he claimed to have deduced from a single bone.¹ Such performances rarely offered detailed proofs or evidence of God’s design and attributes, but were delivered in an edifying and reverential tone. As a form of spectacle and rhetoric, natural theology helped to build broad, non-sectarian alliances, as well as common ground for different communities of belief and practice within the Anglican Church.

According to the older historiography, natural theology and the bonds it reinforced between science and religion in the first half-century were swept away by Darwin’s *Origin of Species* and the secular campaigns conducted in its wake and often in its name. Huxley, by his own account and the generations of historians who accepted it, defended Darwinian theory against the haughty Bishop of Oxford, Samuel Wilberforce, at the 1860 British Association meeting, winning the battle of science against religious prejudice (Brooke 2001). Narratives of progress were rewritten, leaving out the guiding hand of Providence. God receded far into the background as a first cause or an unknowable force. Agnosticism became a watchword for scientific practitioners, a convenient veil for atheism. The reform of scientific organizations and education more generally accompanied this triumph of naturalism, and men of science ceased to be clergymen by profession and found careers in university teaching and research (Heyck).

Revisions to this picture began with closer attention to theological writing across the denominations, revealing a breadth of approaches to nature, the Bible and church doctrine. Scholars have now shown that many of the so-called science and religion controversies took place within religious circles. Disputes about Darwinian evolution were often continuations of
earlier theological debates on the role of special providence, natural law, the authenticity of miracles and so forth (Moore). The clergyman–naturalist Charles Kingsley wrote to Darwin, describing how natural selection presented a ‘noble conception of Deity’ (Darwin 7:179–80). One of Darwin’s leading supporters, the American botanist and ardent Presbyterian Asa Gray, argued that natural selection was not inconsistent with natural theology, for it left questions of first causes, the origin of life and the design of nature’s laws quite open. Darwin tended to encourage such religious readings of his work, inserting a passage from Kingsley’s letter into the second edition of *Origin of Species* and financing the republication of Gray’s articles in pamphlet form in England.

Liberal clergymen and theologians accommodated Darwinian theory just as they took up historical and philological approaches to the Bible, adapting methods of scientific inquiry to sacred texts and traditions, advancing a view of God’s revelation as a truth gradually unfolding in conjunction with scientific developments (*Essays and Reviews*). Reforming parties within the church struck alliances with men of science to challenge the authority of doctrine, especially subscription to the Anglican creed. Huxley himself worked closely with liberal clergymen in joint projects of reform that broadened the traditional classical curricula of schools and universities, introducing new science subjects, examinations and degrees (White 2003). In the periodical press and other forums of intellectual discussion such as the Metaphysical Society, potentially divisive issues such as the nature of the soul and its influence on matter were debated frankly and cordially. It was in the context of such debates that Huxley coined the term ‘agnosticism’, denoting an openness of conviction and an attitude of free enquiry to all matters of belief. This slender ‘creed’ derived in part from Protestant theological writing on the limits of knowledge, and could be foundational to both scientific and religious life (Lightman 1987).

In much popular science writing, natural knowledge continued to be placed within a Christian framework. Evangelical publishers such as the Society for the Promotion of Christian Knowledge and the Religious Tract Society commissioned works that targeted working and lower middle-class readers, emphasizing feelings of wonder and humility rather than rational grounds for belief (Fyfe). Popular authors such as Margaret Gatty, John George Wood and Arabella Buckley introduced the study of nature to the young, imparting reverence for the harmony and purpose of God’s creation. The tradition of natural theology persisted in such writing, with the adaptive structures of form and function taking on a perfection that was more akin to Paley than Darwin. In *The Fairy-Land of Science*, Buckley evoked the ‘unseen power’ (25) behind the universal laws that reached from the heavens to each droplet of water, calling the reader to rise ‘through nature to nature’s God’. Even lengthy technical works of botany, entomology and microscopy might link the practice of science with spiritual discipline. In *The Microscope and its Revelations*, the Unitarian zoologist William Carpenter showed over the course of 700 pages how the wonders of creation, hidden to the naked eye, became manifest to the keen observer after patient and dedicated study. Close attention to detail and the self-control required in sound scientific practice became a means of shaping the moral and religious self.

From the beginning, most controversies over Darwinian theory were not centred on natural selection per se but on its application to ‘man’. Many accepted the arguments for animal ancestry but retained belief in the uniqueness of humans, whose powers of mind and morality gave them a special place in nature. Liberal theologians who rejected the traditional foundations of faith in scripture and the church looked instead to inner feelings of obligation, conscience and reverence as marks of man’s God-given nature. When the geologist Charles Lyell, a close friend and advocate of Darwin’s, addressed the question in *Antiquity of Man* (1863), he refused to extend evolutionary theory to human mental and moral faculties, confessing privately that this removed ‘much of the charm’ (Darwin 11:218) from his speculations on the past. The Roman
Catholic zoologist St George Mivart granted the evolution of the human skeleton and brain by natural causes, but not man’s abiding sense of sin, his abhorrence of cruelty and his esteem for charity. Scottish Presbyterianism remained important for leading physicists William Thomson, James Clerk Maxwell, Balfour Stewart and Peter Guthrie Tait, who regarded the second law of thermodynamics as evidence of the transitory nature of material existence. Energy, graced by God at the dawn of creation but gradually dissipating, was addressed as a moral problem through exhortations to good Christian work in the world and the belief that the ultimate power that had given life on earth would restore it after death (Smith). In *The Unseen Universe* (1871), Stewart and Tait speculated (anonymously) that energy flowed from the visible world to an invisible, spiritual realm, from whence it would ultimately return.

Insistence on the special providence and moral mission of man was not only important for individual believers, but fundamental to broader claims of European civilization and empire. In Britain’s colonies, science was coupled with Christianity to demonstrate the inferiority of native peoples, and the study of nature was enlisted in their conversion from a heathen or barbarous state (Drayton; Sivasundaram). Ethnographers charted the advances in religion that accompanied those in knowledge, material technology and social institutions. Tracing the stages of culture from savagery to civilization, E. B. Tylor rooted primitive forms of religion, such as animism and fetishism, in the ignorance and fear that inspired tyrannical forms of government. Belief in the divine right of kings and other supernatural powers, he argued, were relics of primitive superstition. The anthropologist and liberal MP John Lubbock assured his readers that, while the details of savage beliefs and practices are often repugnant, ‘the religious mind cannot but feel a peculiar satisfaction in tracing up the gradual evolution of more correct ideas and of nobler creeds’ (114). Religion advanced with more enlightened forms of government, from animism to polytheism to the worship of one supreme being. Born by steam ships and steam presses, railroads and telegraphs, the message of Christianity was spread through Britain’s imperial dominions.

The progress of religion did not always culminate in Christianity, however. In the *First Principles* of his synthetic philosophy, Herbert Spencer described the gradual decline of formal systems of belief through progressive stages of adaptation. As scientific knowledge advanced, the human mind and society would achieve perfect correspondence with nature and its laws, corrupt and restrictive institutions of government would dissolve and anthropomorphic deities would give way to a purer form of worship: the ultimate mystery of reality. Spencer insisted that this ‘first principle’ of philosophy, the ‘Unknowable’, was the shared basis of science and religion, an affirmation of the truth behind all appearances, and manifest in feelings of awe, wonder and reverence, indeed the same feelings that some liberal theologians had made the foundation of Christian faith. As Spencerian evolution gained in popularity over the second half of the century, more religious forms of agnosticism were taken up with evangelical fervour. Inspired by the success of the Religious Tract Society, the secularist publisher Charles Albert Watts founded the *Agnostic Journal* and recruited authors of books, pamphlets and articles to spread the doctrine of cosmic evolution and worship of the Unknowable (Lightman 1989).

In the closing decades of the century, other movements of secular and syncretic religion proliferated. The Oxford philosopher and physician Richard Congreve founded the London Positivist Society (1867) and later the Church of Humanity (1878) based upon the writings of the French theorist Auguste Comte. Comte’s vision of progress, culminating in ‘positive’ knowledge and government by scientific principles, had been widely discussed among London radicals and critics, such as John Stuart Mill, George Henry Lewes and Harriet Martineau. It was also inspirational for a group of Oxford scholars in the middle of the century, who later moved away from Anglicanism and sought a religious foundation for reform outside of Christian
orthodoxy (Kent). Instead of the idealized providence of Catholic, Protestant or deist, Comte declared, positivism reflected the ‘real Providence in all departments—moral, intellectual, material’ (1). The group, which included lawyers, civil servants, essayists and politicians, drew largely on a body of Comte’s writings that gave secular (indeed technocratic) form to Catholic ritual and organization, including an elite priesthood of believers (the ‘servants of humanity’), an elaborate system of worship, a positive ‘catechism’, a library and a calendar of scientific ‘saints’. The positivist future was an altruistic utopia, in which selfish instincts and class conflict would be overcome. Guided by a small body of philosophers and educators, the great mass of workers would become a single family, ruled by social physics and bound by their common love for humanity (Dixon 2008A).

Analogous in its elitism, but drawing largely on eastern traditions, the theosophy movement originated in New York City, moving to London by way of India in the 1880s, and was composed mainly of urban artists, writers and intellectuals. Its charismatic founder, the Russian aristocrat Helena Blavatsky, described theosophy as a ‘synthesis of science, religion, and philosophy’ imparted to her by learned adepts in the course of her world travels. In *The Secret Doctrine* and other writings, she and her followers incorporated occult and mystical traditions (Zoroastrianism, Hermeticism, neo-Platonism), elements of physics, chemistry and psychology with a predominance of Hinduism, especially the idea of karma, yielding a superior moral system of just rewards. Alfred Sinnett, a leader of the London branch, worked to establish its credentials by experimental proofs of spiritual forces, while the socialist Annie Besant developed its evolutionary principles, from primitive matter through successive stages of reincarnation to the final ascent of man as a spiritual being. Blavatsky’s *Secret Doctrine* engaged critically with evolutionary and atomic theory, energy physics and researches in magnetism, electricity and the ether, sifting modern scientific theories and discoveries and compounding them with ‘ancient wisdom’ while highlighting the limits of conventional science when it came to investigate the innermost secrets of nature.

Theosophy had originated out of the more popular movement of spiritualism by transposing communications with the dead that were the staple of Victorian seances into channels of arcane knowledge, unlocking the wisdom of past lives and higher beings. Spiritualism had gained currency in the middle decades of the century just as mesmerism was in decline. Both practices involved mediums who were able to harness hidden forces and act upon objects at a distance. Seances were typically held in private homes and grew popular among the middle and upper classes. Attendees sometimes paid a small fee for the chance of communicating with a departed loved one, a glimpse of the afterlife or amusement. Some claimed that spirit manifestations demonstrated the existence of life after death, the immortality of the soul and its ability to act on matter. Like natural theology, spiritualism could be harnessed in support of Christianity as a defence against atheism, materialism or agnosticism. But it could also pose a threat to traditional religious beliefs and institutions by allowing access from this world to the next and endowing professional mediums with authority usually reserved for the clergy.

Members of the scientific and medical communities were by no means united in opposition to the movement. Some critics explained the power of mediums and the material manifestations in closed rooms through the art of suggestion, and various unconscious operations of mind and body that were subject to manipulation by tricksters and showmen. But a number of leading practitioners became converts, convinced that the phenomena derived from purely natural and lawful, but unknown, causes. Alfred Russel Wallace campaigned for the scientific investigation of seances and mediums, having satisfied himself of their authenticity. The chemist William Crookes constructed special instruments to measure the power of mediums over inanimate objects, converting the seance into a kind of laboratory. In a series of articles in the *Popular Science Review*,

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of which he was the editor, he announced the discovery of a new ‘psychic force’. Spiritual phenomena seemed analogous to electricity and magnetism – other invisible forces and fluids that had mystified investigators and thrilled audiences in earlier decades. Ongoing debates about subtle and diffused forms of matter, the existence of an electromagnetic ether and the power behind new technologies such as the telegraph all touched the borderland between nature and the supernatural and raised questions about the boundaries of science and its ability to probe the deepest mysteries of life and the universe (Noakes).

In 1882, Crookes and a team of philosophers, classicists, scholars of comparative religion, psychologists and experimental physicists came together to form the Society for Psychical Research, meeting regularly in London under the leadership of Henry Sidgwick, professor of moral philosophy at Cambridge. Special committees were formed to investigate thought transference, mediumship, apparitions and dreams with scientific rigour and impartiality, although some novel methods were developed to study the capricious phenomena and to evaluate evidence based largely on personal testimony, introspection and heightened emotional states. A series of experiments, conducted over two years on a clergyman’s daughters, who exhibited the power to read one another’s thoughts, was abandoned when the girls were detected signalling each other. Vast amounts of data were collected and published in regular proceedings. Two of the members, Edmund Gurney and Frederic Myers, devised a global census of hallucinations and evaluated over 700 cases of apparitions in their two-volume Phantasms of the Living. Other research by the Society on hypnotism and automatic writing seemed to demonstrate hidden levels of consciousness, manifestations of self outside the normal spectrum of awareness, like ultraviolet or infrared rays. As William James, a member of the American branch of the Society, remarked, ‘there is nothing . . . that need hinder science from dealing successfully with a world in which personal forces are the starting-point of new effects’ (327).

James often wrote with a view to broadening the scope of science, extending psychology to religious experience, such as mysticism, faith healing, demonic possessions and ecstasies. He also drew attention to the religious features of science itself, its peculiar faith, passions and enthusiasms. According to Victorian anthropologists, religion had been the science of savages, their primitive form of understanding and operating in a world whose true powers and causes were as yet unknown. Would science then be the religion of the future? Polymath and eugenicist Francis Galton (also Darwin’s cousin) called upon English men of science to become a new priesthood, ministers of nature who would guide the human race towards perfection (260). ‘We claim,’ declared the physicist John Tyndall, ‘and we shall wrest from theology, the entire domain of cosmological theory’ (xcv). Such words, like those of Huxley in his defence of Darwinism, sound like a cry of victory in a war between science and religion. Huxley and his contemporaries knew the power of oppositional rhetoric and directed it towards political ends, especially the reform of Anglican institutions. But such polemical assertions belied a web of alliances between men of science and clergymen, intricate negotiations over cultural boundaries and expertise and enduring religious structures of belief about creation, human origins and providence. For better or worse, the history of science and religion remains a lively and controversial subject. The view of science and religion (or theology) as locked in perennial battle has proved so enduring in the public sphere that nearly every work by historians in recent years, including this one, begins and ends by denouncing it.

In conjunction with popular and specialist science writing, works of theology, moral philosophy and metaphysics, sermons, addresses and essays, nineteenth-century poetry and prose fiction helped to shape these complex and shifting relations of science and religion. Mary Shelley’s Frankenstein (1818) drew on contemporary debates over the nature of electricity and the origins of life from inanimate matter, restaging the Promethean myth of godly invention through its
twinned characters, the natural philosopher and polar explorer, shadowed by the monstrous creature of scientific hubris. The spark of life and generative power of imagination yield only hideous destruction when severed from moral sympathy and familial affections. The relationship between moral and material progress was reconfigured in the ‘condition of England’ novels of Charles Kingsley (Yeast and Alton Locke) and in a happier tale of human development, The Water-Babies (1863). In this popular children’s book, the clergyman–naturalist expounded a version of Christian Darwinism, following a young chimney sweep through regressive stages of life, then forward, the boy becoming a heroic man of science and industrialist as a reward for his good deeds in the oceans of time. Natural history as an observational science and moral economy also informed George Eliot’s early essays on literary realism and the ‘organic’ form of her novels Romola (1862–63) and Middlemarch (1871–72), in which evangelical piety, science and scholarship contend, their discipline and authority threatening to stifle or dissolve selfhood and human feeling until a complemental relation can be struck. A more radical solution was proposed by the late Victorian satirist Samuel Butler. At first enamoured by Darwinism as an antidote to Christianity, he grew critical of its sacred texts, such as The Origin of Species, that seemed to harden into orthodoxy, the ‘man of science’ being only ‘the cleric in his latest development’ (Butler 1913 179–80). Butler wrote scathingly about Victorian authorities and conventions in the semi-autobiographical The Way of All Flesh (1903), and in a series of speculative works beginning with Life and Habit (1878) he explored the unconscious forces of biological development and the cultural processes, especially authorship, that write, edit and erase the material of memory, reshaping the evolutionary future.

Despite the marked attention of scholars of literature and science to prose fiction, poetry was perhaps the most important literary form of engagement with science and religion in the nineteenth century. This was due in part to the enduring figure of the poet as a seer or prophet, epitomized by Wordsworth and Tennyson and their well-known ambivalence towards ‘positive’ or empirical science, but also because of the familiarity and intimacy of the poetic form, its common place in private life and communication between friends (or adversaries). Some correspondents of Darwin addressed their criticism in verse. Scientific practitioners often wrote poetry, not only in their youth or moments of ‘idle fancy’ and amusement, such as the comic rhymes and songs composed for annual meetings of the Red Lion Club at the British Association, but as serious speculative endeavour. Charles Lyell’s early geological writing took the form of Byronic verse, a model he extended to his Principles of Geology, converting the Earth into a Byronic hero (Buckland 2013 95–7, 127–30). For physicists and mathematicians, poetry opened a space of personal and metaphysical reflection that had been sealed off in science. James Clerk Maxwell wrote odes for colleagues and friends, first as a coping device for the mechanical exercises of the Cambridge examination system and later as a means of exploring foundational and methodological issues that had no scope in the official curriculum. He sustained his belief in Christian cosmology through personal hymns to the Creator, akin to the songs of praise in Scottish Presbyterian worship (Brown 62–3).

The most influential poetic reflection on religion and science of the second half-century was Tennyson’s In Memoriam. Though published in 1850, it was composed over two decades, taking in the new science of geology, especially Lyell’s Principles, the fossil evidence of large-scale extinction and the transformism of Lamarck. Beginning with the death of his friend Arthur Hallam, Tennyson’s elegy extends to all of creation; personal loss swells to embrace earth history and the insignificance of human achievement (‘the clock / Beats out the little lives of men’ (Canto 2, ll. 7–8)) in the face of Nature, ‘I care for nothing, all shall go’ (Canto 56, l. 4). Grief and loss are not final, however, but stages in a larger process of development. Faith in a loving
God and trust in higher purposes falter, but return, reaching beyond the limits of knowledge to the promise of rebirth and revelation, when the book of nature is fully open to human understanding. Though written many years before *The Origin of Species*, *In Memoriam* would be evoked by later readers in response to Darwin’s theory of descent by natural selection and the challenges it posed to a benevolently designed order (Holmes 2014).

In 1869, Tennyson delivered a poetic prologue to the first meeting of the London Metaphysical Society, an organization founded with the aim of discussing matters of common interest between men of science, clergymen and men of letters. The poem for the occasion, ‘The Higher Pantheism’, was characteristic of Tennyson’s post-Darwinian works, more insistent on the separation of faith and knowledge and more assertive of the primacy of religious belief. Its quaint inversions would be parodied by Swinburne in ‘The Higher Pantheism in a Nutshell’: ‘and God, who is not, we see . . . and diddle, we take it, is dee’. Such irreverence by a younger generation of poets was not shared by men of science, however, who began to forge Tennyson’s reputation as the ‘Poet of Nature’ and ‘Poet of Science’ in the closing decades (Holmes 2012). Divergent readings of Tennyson reflected the wide range of conjunctions between science and religion across the nineteenth century: the enduring tradition of natural theology, the union of material and spiritual evolution, the reverence for scientific discipline and natural law, the poetic intuition of truth beyond appearances, and enchantment amid the harsh, impersonal forces and facts of nature.

**Notes**

2. See Martin Willis, ‘Scientific Cultures and Institutions’, in this volume.

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Further reading


