Erasmus Darwin’s Impact on Religious and Scientific Views of English Romanticism

By Alan S. Weber

Erasmus Darwin (1731-1802) is primarily remembered today as a precursor of his grandson Charles Darwin’s theories of evolution, and secondly as a poet and serious medical scientist, although he was a much-celebrated versifier in his day and briefly one of England’s most popular poets. His style and poetic vision were quickly eclipsed by the Romantic Movement, however, and the explosion of scientific inquiry in the 19th century, but his influence, particularly the medical treatise Zoonomia and the scientific poems The Botanic Garden and The Temple of Nature, can be clearly traced in Wordsworth, Coleridge, Keats, Byron and the Shelleys.

A monograph by Desmond King-Hele on Darwin’s impact on the Romantic poets uncovered many parallel passages and verbal echoes.¹ I would like to trace Darwin’s influence on William Wordsworth and Samuel Taylor Coleridge specifically using a macro-historical and history of ideas perspective to contextualize Darwin’s impact within late 18th century intellectual culture—specifically radicalism, materialism, and spirituality. John Livingston Lowes was perhaps the first modern critic who recognized that Darwin’s verse and prose had cast a long shadow into the early Romantic period and helped frame the Romantic poets’ views of science, theology, and poetry.² After an initial attraction
to Darwin’s radical politics and approach to scientific poetry, however, both Wordsworth and Coleridge rejected both his aesthetics and world view. The ‘Preface’ to Wordsworth’s and Coleridge’s *Lyrical Ballads* is believed by some scholars to be a veiled diatribe against Darwin.³

Erasmus Darwin was a Cambridge and Edinburgh educated successful physician practicing in Lichfield, and a Royal Society fellow who published on a variety of scientific topics and invented several mechanical devices such as a vertical windmill.⁴ Darwin translated Linnaeus’s Latin treatise *Systema vegetabilium* in 1783 which categorized plants by their sexual organs. He then somewhat comically versified the Linnaean system as the immensely popular poem *The Loves of Plants*, published along with *The Economy of Vegetables* as *The Botanic Garden* (1789-91).

Darwin’s work supported the natural theology of John Ray and William Paley, the school of religious thought that used the argument of the complexity of nature as proof for a creator (in other words, a non-random and non-accidental creation presupposes a creator, or previous intelligent cause). The Romantic nature poets similarly celebrated the wisdom of nature as a divine plan. Many of Darwin’s theories of nature were unorthodox to European Christian conventional wisdom—the evolution of species from an original filament, the great age of the earth (much older than Bishop Ussher accepted 5,800 years), and his doctrine of survival of the fittest.⁵

**Zoonomia and Mechanism**

Darwin’s *Zoonomia* (vol. 1, 1794; vol. 2, 1796) is both a product of the age in its praxis and a novel theory of medicine. His therapeutics are based ultimately on Galen and Hippocrates, and include emetics, cathartics, and phlebotomy or venesection (bloodletting). His pharmacopeia relies heavily on bark (cinchona or quinine) and opium, the scourge of many patients including the addicts Tom Wedgewood (Darwin prescribed his opium) and Wedgewood’s friend Coleridge. Darwin also prescribed electrotherapy for muscle paralysis. *Zoonomia* was clearly written to be definitive, systematic, and comprehensive; a writer for *The European Magazine* claimed that *Zoonomia* “bids fair to do for Medicine what Sir Isaac Newton’s *Principia* has done for Natural Philosophy.”⁶

The stated purpose of Zoonomia was to “reduce the facts belonging to ANIMAL LIFE into classes, orders, genera, and
species; and, by comparing them with each other, to unravel the theory of diseases.” Based on his work on Linnaeus, Darwin attempted to bring rational order to human disease by a Linnaean division of illness into four Classes, Orders, and Genera. The four classes correspond to the four categories of Darwin’s *sensorium*, also called the *spirit of animation*: Diseases of Irritation, Volition, Sensation and Association. His immediate theoretical sources were Hermann Boerhaave (1668-1738), John Brown (1735-1788), William Cullen (1710-1790), and Thomas Beddoes (1760-1808). Cullen was generally a mechanist, but believed in a non-material principle of thought. Boerhaave, who emphasized the mechanical and hydraulic nature of the body’s systems, wrote his 1690 dissertation at the University of Leiden on the difference between the mind and body, and also condemned the materialist and atomist philosopher Epicurus. Darwin in the Preface to *Zoonomia* complained about those who “considered the body an hydraulic machine.” However, it is difficult to see how his physiological system differed substantially from an overall materialist view of the human organism.

Mechanist explanations of human physiology which were independent of or glossed over the need for a Creator or interventionist God became more numerous in the eighteenth century. La Mettrie published his controversial *Histoire naturelle de l’âme* in 1745, then the atheistic *L’homme machine* in 1748, a refutation of Cartesian dualism. La Mettrie’s work claimed that the soul was governed by a self-motivated *force motrice*, and mental phenomena (centered in the brain and the nervous system and causally connected to exterior phenomena by direct physical proximity) are completely grounded in the natural world. The endpoint of La Mettrie’s controversial natural philosophy is biological determinism in which all aspects of cognition, emotion, sensation, motivation, and behavior etc. are ultimately quantifiable and measurable processes which are self-moved.

The ancient philosophers Lucretius and Epicurus had posited essentially the same materialistic system in their theory of atomism. In this view, there is no need of Revelation or an Intelligent Creator, and both atomist philosophers and their followers were attacked throughout history for denying providence, the immortality of the soul, and the reality of gods. All causation in classical atomic theory arises from the random combination of atoms,
not from divine fiat. Biological and mechanistic fatalism (strict determinism) is unpalatable to Christian theology because the soul requires free will to choose good over evil. In the early medieval period, Christian fathers such as Gregory of Nyssa had launched lengthy and detailed attacks on Stoic and pagan fatum. They also dismissed astrology, the idea that celestial and planetary positions determined an individual’s temperament (horoscopes) and future actions.

Albrecht von Haller believed that the body was essentially an animated and hydraulic automaton. Darwin, along with Stephen Hales and La Mettrie (L’homme plante), also saw strong analogies between plants and animals, i.e. between the vascular system of higher plants and human blood vessels and arteries, and this was an attractive concept for both natural theology and the Romantics (demonstrating the unity of nature); Christian theology in the 18th century, however, made a greater distinction between man and other living beings, with man as the only rational being with free will, thus the only creation capable of loving God and singled out for a special providence.

In Darwin’s Zoonomia, corporeal movement as well as psychological functions are governed by a spirit of animation (also called the sensorium or sensorial power), which causes contraction of animal fibers. The spirit or sensorial power possesses four faculties: irritation, sensation, volition, and association. Darwin hypothesized that “the spirit of animation, may consist of a matter of a finer kind….and [I] leave the consideration of the immortal part of us, which is the object of religion, to those who treat of revelation.”

The final statement claiming ignorance of the theological implications of his theory of mind (soul) is typical of Darwin throughout his poetry and prose, technically making him an agnostic in religion, although this term was not in use at the time. Darwin’s subtle (possibly material) spirit of animation which causes both mechanical movement and mental phenomena seems akin to the pneumatic medical spirits of Galen, which many classical and medieval medical writers had theorized to be simply rarefied, material air (pneuma).

Darwin speaks very favorably of the material doctrines of ancient atomism, and he seems to believe that it could be salvageable as a philosophy of nature simply by ascribing the random atomic combinations of Lucretius to natural laws instituted by a creator. Fara has found Lucretian
references in Darwin and Logan has suggested an important Lucretian parallel in *De rerum natura* to Darwin’s theories describing how the soul perceives sensory data. In a perfectly mechanistic chain of events, Lucretius’s atoms of mind strike the atoms of spirit and move the atoms of the body. La Mettrie also believed like the Stoics that there was only one material substance in the universe existing in different modifications, thus his explanations of the faculties of an immaterial soul could be explained materialistically. Hassler argues similarly that “Darwin’s physiology and psychology are grounded in a univocal matter theory. Spirit becomes no different from matter”.

In Darwin’s own time, Thomas Brown wrote *Observations on the Zoonomia of Erasmus Darwin* (Edinburgh, 1798) to refute Darwin’s medical hypotheses and to demonstrate that he was simply a materialist.

### The Romantics’ Aversion to Materialism and Mechanism

Darwin’s inquiries into the minutiae of the workings of nature and the necessary precision required by both scientific experimentation and the practice of medicine was inimical to the streams of Romantic thought and art that became the Gothic, nature worship, and certain forms of symbolism (the Swedenborgianism of Baudelaire and Rimbaud, for example), and aesthetic interest in the sublime. Modern science does not generally tolerate ambiguity – terminology must have one and only one meaning; this is fundamental to scientific discourse. Darwin’s versifying of the sciences (for example, the Linnaean system of sexual differences in plants), merely involved finding different (anthropomorphized) metaphors for the scientific facts of plant pollination. The Symbolism of the Romantics, although similarly based on metaphor and analogies, was meant to expand meanings and find interconnections.

The scientific analogy of Darwin, on the other hand, was a logical tool to discover the closest parallel phenomena; i.e. the vascular structures of plants are very closely analogous to the vessels in the human body because both transport nutrients for their respective organisms. Philosophically, Darwin appears to have understood this distinction between poetic and scientific analogy clearly, as Griffiths has argued: “Yet Darwin sounds a cautionary note, as analogy’s potent associative power can also corrupt scientific inquiry: ‘but when with licentious activity it [analogy] links together objects, otherwise discordant, by some fanciful
similitude; it may indeed collect ornaments for wit and poetry, but philosophy and truth recoil from its combinations….“

12. Coleridge and Wordsworth also seem to have recognized this distinction. For example, Wordsworth criticized those poets (Darwin seems to be intended) who “indulge in arbitrary and capricious habits of expression in order to furnish food for fickle tastes and fickle appetites of their own creation.”

13. What Wordsworth means is that poets like Darwin create unnatural and artificial metaphors and symbols instead of uncovering the true relationships between words and objects, a later avowed purpose of the Symbolist poets.

### Wordsworth and Darwin

Matlak believes that Darwin impacted Wordsworth profoundly and Wordsworth urgently requested a copy of *Zoonomia* while he was composing his *Lyrical Ballads*. Darwin and Wordsworth both looked for a common sentience in all living beings as an expression of the goodness of the Creator in creating life. Wordsworth wrote in “Lines Written in early Spring”: ‘And ‘tis my faith that every flower / Enjoys the air it breathes,’ expressing Darwin’s exact sentiments in The Loves of Plants. But Chester Chapin has argued that the 1800 Preface to Wordsworth and Coleridge’s *Lyrical Ballads* was a nervous refutation of Darwin. A contemporary critic in the *Edinburgh Magazine* similarly believed that Darwinian poetry was distinctly different from the Romantic Lake poets: “in matter, and in manner, the Lake and Darwinian schools of poetry are the very antipodes of each other – hostile in all their doctrines, and opposite in every characteristic.”

In an unpublished manuscript note, Wordsworth wrote: “my taste and natural tendencies were under an injurious influence from the dazzling manner of Darwin.” The Advertisement to the 1798 edition of *Lyrical Ballads* seems to be specifically targeting Darwin’s injurious influence by complaining of the gaudy, dazzling and inane phraseology of many modern writers. Many of the contemporary aesthetic criticisms of Darwin revolved around his use of ornament, gaudiness, and frippery – i.e. an artificial ‘artfulness’ predicated on artifice, as opposed to natural organicity. Thus we see an early nascent polarity in English thought between Darwin’s ‘artificial’ human scientific endeavors, and the ‘naturalness’ of divinely created nature. This discourse could be easily coupled with ‘the vanity of human learning’ (**vanitas**
vanitatum) notion in Christianity which scorned human attempts to decipher through reason the complexity of God and God’s creation, thus necessitating faith.

But Wordsworth’s aesthetic critique of Darwinian poetry also had a serious epistemological aspect: Darwin’s verse was not capturing the reality of experience – Darwin’s analytical and empirical methods disguised as art killed off something essential about beauty, the expression of God’s grandeur in nature. Wordsworth’s “Tables Turned” and “Expostulation and Reply” express disgust with ratiocination and bookish learning:

Our meddling intellect
Mishapes the beauteous forms of things;
–We murder to dissect.20

In addition, in the 1802 Preface to *Lyrical Ballads*, Wordsworth promises no theoretical speculation, nor personifications of abstract ideas, a hallmark of Darwinian verse. Similarly, it is difficult not to believe that Wordsworth’s “A Poet’s Epitaph” (addressing a botanizing physician) is not a satire of Dr. Darwin:

Physician art thou? One, all eyes,
Philosopher! a fingering slave,
One that would peep and botanize
Upon his mother’s grave?21

The botanizing of Darwin is here accused of disrupting the natural order of spiritual taboos (the sanctity of a mother’s grave).

**Coleridge and Darwin**

Ullrich counted thirty-five references to Erasmus Darwin in the first two volumes of Coleridge’s Notebooks and eleven references in volumes I and II of his Letters.22 Coleridge was clearly impressed with Darwin’s range of knowledge and accomplishments. Coleridge read widely in medicine, partly to find relief from his many afflictions, including textbooks on physiology, pathology, hygiene and materia medica23. There might therefore have been some anxiety of influence in Coleridge’s spiritual and intellectual rejection of Darwinism.

Coleridge visited Darwin in 1796 when he was 23. Coleridge wrote a letter about the meeting to Josiah Wade on 27 January 1796: “Derby is full of curiosities…Dr. Darwin, the everything, except the Christian! Dr. Darwin possesses, perhaps, a greater range of knowledge than any other man in Europe, and is the most inventive of philosophical men. He thinks in a new train, on all subjects except religion.”24 Coleridge also wrote to John Edwards that Darwin was interested in Coleridge’s Unitarianism and had exposed himself as an atheist.25 Despite his
intellectual admiration for Darwin, Coleridge wrote to Thelwall in 1796 about Darwin’s *Botanic Garden*: “I absolutely nauseate Darwin’s poem.”26 Similar to Wordsworth, Coleridge would later criticize Darwin’s “gaudyverse” and the error of “Darwinizing.”

The young Coleridge probably came away from the meeting in 1796 impressed with Darwin’s vast knowledge, but also somewhat taken aback by Darwin’s irreverence and his nettling him about Coleridge’s Unitarianism. Charles Darwin wrote in his biography of his grandfather Erasmus: “Although Dr. Darwin was certainly a theist in the ordinary acceptation of the term, he disbelieved in any revelation….Nor did he feel much respect for Unitarianism, for he used to say that ‘Unitarianism was a feather-bed to catch a falling Christian.’”27 Despite Erasmus’s mocking of conventional religion, however, Charles Darwin explicitly denies that his grandfather was an atheist. But the charge of atheism and materialism would dog Erasmus even in his lifetime. Darwin’s friend Edgeworth wrote to him upon receiving a copy of *Zoonomia* that he was not fooled by Darwin’s references to God, exposing Darwin as a mechanist and materialist who had no need for divine causation in his theories: “Your Ens Entium is the same as your living filament–your God of your God!”28

The context of an England fearing French radicalism, and intolerant of dissenting religions and the example of La Mettrie who was hounded from several countries for maintaining an atheistic materialism made Darwin circumspect about criticizing religion directly in his published writings. As Primer argues: “Darwin carefully avoids any overt implications of irreligion, theism, blasphemy and the like. There is a God, the Great Author of all things, the Ens Entium, and his existence is confirmed by the argument from design.”29 Charles Darwin would later face the same charges as Erasmus of materialism and atheism, and generally dodged the controversies by avoiding discussions of religion, or allowing champions such as Thomas Huxley (“Darwin’s bulldog”) to take up the gauntlet of evolution.

Since the early modern period, English physicians have suffered from a reputation for atheism, and Sir Thomas Browne’s *Religio medici* (1643) was written in part to refute the popular aphorism ‘ubi tres medici, duo athei’ – where there are three physicians, two are found to be atheists. Until the late 19th century, European medicine was dominated by Galen and
Hippocrates, who had banished divine and metaphysical causation in diseases in his *De morbo sacro* (*On the Sacred Disease*), declaring that epilepsy or the falling sickness (commonly believed to be caused by demons or religious ecstasy) was no more sacred or mysterious than any other bodily ailment. Darwin’s medical training, which in reality would have differed little from Sir Thomas Browne’s, would have explicitly encouraged a secular view of physiology and psychology.

Other religious and spiritual implications of Darwin’s scientific theories besides his dispensing with an active God in natural causation were equally troubling for Coleridge. Coleridge wrote to Wordsworth about the poem *The Excursion* expressing relief that he had rejected Darwin’s notion of “Man’s having progressed from an Ouran Outang state.”

Thus in Coleridge’s view, Darwin was denying any divinity in man because he was descended from a lower species, the same accusation that Bishop Wilberforce in a debate with Huxley would later level at Charles Darwin and the *Descent of Man*.

**Conclusion**

By end of the 19th century, theology and science had become divorced in a split that has been simplistically dubbed ‘the Two Cultures’ by author C.P. Snow. The positivism of Auguste Comte was partially responsible for this division, due to his insistence that true scientists should only look for proximate secondary causes and not seek vainly after ultimate causes. More and more scientists quietly abandoned inquiry into first causes and primary movers, and specifically German experimentalism in sensory perception contributed to the secularization of psychology, which replaced theological models of the faculties of the soul. The final dismantling of untenable Aristotelian concepts of space, time, physics, metaphysics, biology, and generation (which had first came under serious attack from Copernican cosmology), which had been superimposed onto Christian theology by the scholastics and harmonized with revelation, also played a part in the decline of theology in natural philosophical inquiry. Erasmus Darwin at heart was probably a material monist, with sympathy for a materialistic atomic theory of matter, and troubled by the still scientifically unanswered question of what causes life. His attempt to answer such questions with mere mechanism and materialism in both a poetic garb, and in the medical treatise *Zoonomia*,
was not satisfactory spiritually, aesthetically or emotionally for the Romantics. Thus, Hassler is probably correct in stating that Darwin’s ‘materialistic pessimism’ “played an important role as a kind of negative catalyst for the Romantic Movement.” Coleridge and Wordsworth in particular were prescient in envisioning that the Darwinian outlook, which does in fact now dominate our modern scientific understanding of life (most current biological, psychological and physiological models are based on the laws of physics, chemistry, and mechanics), would have profound implications for the spiritual realm, and our human sense of wonder, mystery, devotion and awe in the presence of the divine.

Notes

7 *Zoonomia*, vol. 1, Preface.


9 *Zoonomia*, vol. 1, 39.8.6.


17 *Edinburgh Magazine* 2, 1818, p. 313.

18 DC MS 151/4, 1842.


31 Strictly speaking, Snow’s original distinction was between the humanities and science, but training in theology and preparation for the Church was accomplished in England through an education in literature, rhetoric, and the classics.

32 Donald M. Hassler, 1970, ‘Comment on the Relation of Erasmus Darwin to the Wordsworth Circle,’ *The Wordsworth Circle*, 1,2, p. 73.