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Résumé de l'article

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Romanticism and Victorianism on the Net

Questions of inheritance: Erasmus and Charles Darwin

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Abstract

Would Charles Darwin have developed the concept of natural selection if he had been born into a different family? Although Darwinian natural selection is situated within the context of Victorian capitalism, there is also clear evidence that Charles studied the evolutionary ideas of his grandfather, Erasmus Darwin. In this essay, I examine the evidence testifying to connections between them. Familial and broader contextual effects are inevitably intertwined, but I divide influences into two major strands: those passed down directly through family interactions, and those more closely tied to particular books. Charles's family history inclined him towards thinking about inheritance, and while it is impossible to pin down a causal relationship for the similarities in their religious views, it does seem certain that Charles acquired his abhorrence of slavery from his family. Annotations confirm that Charles read his grandfather's books closely, notably *Zoonomia* (1794-6) and *The Temple of Nature* (1803). Both Darwins shocked their critics by denying divine direction, yet by presenting evolution through natural selection as the only viable alternative to repeated miraculous creation, Charles effectively concealed his grandfather's suggestion that life had stemmed from a single event of spontaneous generation. Death, argued Erasmus, is essential for preventing a population explosion that would outrun the world's resources, a Malthusian concept that was crucial for Charles's development of natural selection. The extent of Erasmus Darwin's influence on his grandson must remain speculative, but it cannot be dismissed.

Biographical note

Patricia Fara is an Emeritus Fellow of Clare College, Cambridge, where she lectured in the History of Science. A regular contributor to popular journals as well as *In our Time* and other radio/TV programmes, she has published a range of academic and popular books on the history of science. These include: her prize-winning *Science: A Four Thousand Year History* (2009); *Erasmus Darwin: Sex, Science and Serendipity* (2012); and *A Lab of One's Own: Science and Suffrage in the First World War* (2018).

1. Erasmus Darwin’s reputation fluctuated during his lifetime and has undergone several changes since his death.¹ Once renowned as a provincial physician and best-selling author of scientific poems, during the nineteenth century he was castigated for his unorthodox views about religion, progress and nature. After slipping from public view, during the last fifty years he has been resuscitated by several historians and variously reconfigured as an exploitative factory capitalist, a prescient inventor, a major influence on Romantic literature, and the originator of evolutionary theories, a distinction often attributed to his grandson, Charles.² Erasmus died before Charles was born, but his attitudes must to some extent have been transmitted down through the intermediate generation. This observation prompts a counter-factual question: would Charles have formulated the concept of natural selection if he had been born into a different family? Thinking in this way is not just a trivial academic game, but encourages reflection on the far larger topic of the relationships between scientific truth and historical contingency (Rupke, 139-44).
2. Surely, runs one line of argument, the knowledge that his grandfather was a leading exponent of evolutionary ideas must inevitably have impinged on Charles’s thoughts about the natural world. Familiar with *Zoonomia*, the medical text in which Erasmus had first tentatively outlined his controversial suggestions; perhaps he was just elaborating theories that had been passed down to him? After all, Charles’s approach seems neatly encapsulated in his grandfather’s pronouncement that “Such is the condition of organic nature! whose first law might be expressed in the words, “Eat or be eaten!” and which would seem to be one great slaughter-house, one universal scene of rapacity and injustice” (Darwin, *Phytologia*, 556).
3. But there is also strong support for the opposite opinion. Charles was not only a singular individual but also a representative of his own era, and it has become a cliché of historical commentary to maintain that his evolutionary theory was inextricably linked to the context of Victorian capitalism. Independently of any direct intra-family transmission, Erasmus and his evolutionary speculations influenced the cultural and intellectual environment that nurtured Charles and encouraged his interest in evolution. This view that Charles was not uniquely different from his peers can be illustrated by this brief biography of an exact contemporary:

Born in 1809, he became one of Victorian England’s most famous writers on nature. He had already begun talking about his evolutionary ideas as an undergraduate at Cambridge, when at a debating society he suggested that people had gradually

emerged from lower organisms, starting with worm-like creatures and moving upwards through shellfish and vertebrates. Reacting against William Paley’s *Natural Theology*, he became convinced that divine design could not be inferred from complex structures such as insects’ eyes or eagles’ wings, and when Robert Chambers’ controversial *Vestiges of the Natural History of Creation* appeared in 1844, he commented that it “seems to contain many speculations with which I have been familiar for years, and on which I have written...” (Secord, 9). He delayed publishing his own major work for many years, but was a prolific author, although often incapacitated by a mysterious ailment for which he enthusiastically took water cures and was treated at Malvern by Dr James Gully. As his reputation grew, he hid himself away in his country retreat, devising with the help of his wife self-protective strategies to avoid meeting his readers. Habitually swathed in a voluminous black cape, he sported a luxuriant beard and posed for the photographer Julia Margaret Cameron on the Isle of Wight; capturing him in near-profile, she lit his domed skull from above so that its reflected glow would convey his status as the nation’s great genius.³

4. That paragraph describes not Charles Darwin, but Alfred Tennyson. It was the poet, not the naturalist, who coined “Nature, red in tooth and claw,” that memorable image of aggressive competition from *In Memoriam*, which was published nine years before Darwin’s *On the Origin of Species*. Like many Victorians influenced by Erasmus Darwin and his generation, Tennyson favoured a model of progressive evolution.⁴ In *The Princess* (1847), Tennyson’s Lady Psyche presents a developmental picture of human origins:

“This world was once a fluid haze of light,
Till toward the centre set the starry tides,
And eddied into suns, that wheeling cast
The planets: then the monster, then the man;
Tattooed or woaded, winter-clad in skins,
Raw from the prime and crushing down his mate...”

(Tennyson, Part II)

5. Such difficulties of identifying influences form part of the far larger debates about historical change that raged during Charles Darwin’s lifetime and remain unresolved. In Thomas Carlyle’s version of the past, human progress relies on the innovations of famous individuals,

but—as Leo Tolstoy maintained—perhaps Carlyle’s heroes are merely the slaves of history fulfilling the decree of providence? Darwin himself had little respect for Carlyle, who once floored Charles Babbage, Charles Lyell and other dinner party guests by delivering a long harangue on the virtues of silence. Far from presenting himself as one of Carlyle’s Great Men of History, Darwin protested that he had succeeded through hard work and patience. “[I]t is truly surprising,” he wrote in the closing remark of his *Autobiography*, “that I should have influenced to a considerable extent the beliefs of scientific men on some important points.” (Barlow, 112-14, 145). Four years later, in 1880, William James borrowed Darwin’s theory of natural selection to attack Herbert Spencer’s synthetic philosophy. Taking it for granted that potential Great Men appear the whole time, James argued that for them to survive and flourish in their specific cultural environment, they must be born in the right place at the right time. “The community stagnates without the impulse of the individual,” he told the Harvard Natural History Society; “The impulse dies away without the sympathy of the community.” (James).

6. In 1958, Charles Darwin’s granddaughter Nora Barlow addressed this topic at a more mundane level by trying to rationalise the relative fame of her two illustrious ancestors. How was it, she asked, that Darwin’s grandfather Erasmus had also produced an evolutionary theory, yet despite fame in his lifetime “left no lasting mark on commonly held beliefs.” And how could Charles’s denial of his grandfather’s influence be reconciled with the apparent similarity of their ideas? Why did Charles criticise his predecessor’s predilection for grand theories, yet take the trouble to write his biography and praise him for possessing “the true spirit of the philosopher”? The answers, she suggested, lay in the combination of Charles’s bid for independence from his overbearing father (Erasmus’s son), basic differences in character, and their intellectual development within very different types of society.⁵
7. Stripped of its stabs at retrospective psychoanalysis, Barlow’s conclusion that individuals are influenced both by their broader context and by their immediate family seems uncontroversial. In this essay, I make no attempt to grapple with Barlow’s search for motivations, but instead examine the evidence testifying to connections between these two Darwins who were born nearly a century apart; although they never met one another, they were irrevocably tied together through birth. For clarity of presentation, I have divided the influences exerted by Erasmus into two major strands: those passed down through the family and the broad cultural context, and those more closely tied to particular books.

I. Environmental effects

8. Try as he might to be independent, Charles could not avoid having being born a Darwin. Even as a child, his family history inclined him towards thinking about inheritance. Named after Erasmus's oldest son Charles, who had died when an Edinburgh medical student, he must have wondered if he were predestined to follow in his predecessor's footsteps. Moreover, he was burdened with the family's embarrassingly large nose and his grandfather's stammer. In a bid to remedy his articulation difficulties, he was encouraged with the reward of a sixpenny piece to practice saying "white wine," a strange choice in a family that perpetuated Erasmus's aversion to alcohol by being virtually teetotal (Browne, 10, 40). Erasmus had watched his first wife (Charles's grandmother) follow her father into alcoholism after being prescribed pain-relieving drugs, and throughout his life Erasmus regarded drink as poison, "the curse of the Christian world, producing more than half of our chronical diseases; which Mahomet observed, and forbade the use of it to his disciples." (Darwin, *Loves*, III, 355n). Erasmus told his son Robert (Charles's father) that "[a]ll the drunken diseases are hereditary in some degree, and I believe epilepsy and insanity are produced originally by drinking," and Charles could never consume a glass of wine without feeling guilty.⁶ He attributed Erasmus's avoidance of alcohol both to his fear of succumbing to inherited attacks of gout and to the influence of his own father (also called Robert), who had written:

From a morning that doth shine
From a boy that drinketh wine,
From a wife that talketh Latine,
Good Lord deliver me.

(Charles Darwin, "Preliminary Notice", 1, 4)

9. Charles Darwin's critics reinforced this family association, casting slurs on him by exaggerating Erasmus's notoriety. One of the most famous—if apocryphal—jibes in scientific history was cast in the 1860 debate at Oxford, when Samuel Wilberforce allegedly enquired whether Thomas Huxley was descended from a monkey on the side of his grandfather or his grandmother. Later that year, in a vituperative review of *On the Origin of Species*, Wilberforce recycled this joke by accusing Darwin of having inherited ridiculous opinions from his "ingenious grandsire." To reinforce his derision, Wilberforce reproduced a long extract from a poem called "The Loves of the Triangles," published in 1798 but still familiar to many of his

readers.⁷ When Charles flicked through Victorian journals, he may well have come across this extract, the one most often quoted:

Debased, corrupted, groveling, and confined,
No DEFINITIONS touch *your* senseless mind;
To *you* no POSTULATES prefer their claim,
No ardent AXIOMS *your* dull souls inflame;
For *you* no TANGENTS touch, no ANGLES meet,
No CIRCLES join in osculation sweet!⁸

On the surface a light-hearted parody of Erasmus Darwin, in reality this trenchant satire was a carefully constructed political manifesto launched by William Pitt’s supporters. Setting up the provincial poetic doctor as their ostensible target, its three authors fuelled fears of a French invasion and linked ideas about evolution and progress with attacks on the monarchy and established religion. Although named after *The Loves of the Plants*, “The Loves of the Triangles” was also based on a close and clever reading of two other works, *The Economy of Vegetation* and *Zoonomia*. Renowned long after its first publication, and even into the twentieth century, this three-part annotated poem was acclaimed in 1888 as mockery “of the highest degree of merit,” a prime example of “true wit and humour [whose] fun can never be exhausted.”⁹

10. The two Darwins held similar views on some important topics. For example, Charles’s religious views apparently resembled those of his deist grandfather, who wrote: “That there exists a superior ENS ENTIUM, which formed these wonderful creatures, is a mathematical demonstration. That HE influences things by a particular providence, is not so evident.”¹⁰ Although that particular correspondence does not necessarily indicate direct influence, what does seem certain is that Charles’s abhorrence of slavery was instilled into him from a young age and formed an integral part of his upbringing, since abolitionism was championed not only by Erasmus, but also by his other grandfather, Josiah Wedgwood. Even before being old enough to read his grandfather’s poems, Charles had been brought up to rebel against slavery by his sisters and his Wedgwood relatives, all staunch charity workers and actively engaged in opposing slavery (Desmond and Moore 1-67).
11. In the superficially frivolous *The Loves of the Plants*, Erasmus focussed on death, disease and disaster in the third Canto, climaxing with a melodramatic protest against the evils of slavery:

E’en now, e’en now, on yonder Western shores

Weeps pale Despair, and writhing Anguish roars:
E’en now in Afric’s groves with hideous yell
Fierce SLAVERY stalks, and slips the dogs of hell;
(Darwin, *Loves*, III, 441-44)

12. Wedgwood devised the political slogan ‘Am I not a man and a brother?’ to accompany his evocative image of a kneeling slave with raised, chained hands. First produced as a pottery medallion, this image was widely reproduced on abolition literature and marketable items such as pendants, snuff boxes and teacups. In a late addition to *The Economy of Vegetation*, Darwin included an engraving of Wedgwood’s captive African, remarking approvingly that his friend had “distributed many hundreds to...assist in the abolition of the detestable traffic in human creatures.”

Form the poor fetter’d SLAVE on bended knee
From Britain’s sons imploring to be free;
(Darwin, *Economy*, II, 315-6)

About a hundred lines later, he described it again:

—The SLAVE, in chains, on supplicating knee,
Spreads his wide arms, and lifts his eyes to Thee;
With hunger pale, with wounds and toil oppress’d,
“ARE WE NOT BRETHREN?” sorrow choaks the rest;—
(Darwin, *Economy*, II, 425-8)

13. Darwin was not simply repeating himself. Whereas the earlier couplet had contributed to his advertisement for Wedgwood’s industrial success, this second description featured in his own tirade against oppression and his support for the French and American Revolutions. During the sugar boycott, designed to force the government into action by reducing their tax revenue, Darwin encouraged British farmers to grow sugar beet at home. When Charles Darwin read *Phytologia*, he would have seen his grandfather’s impassioned outburst about sugar cane: “Great God of Justice! grant that it may soon be cultivated only by the hands of freedom” (Darwin, *Phytologia*, 77).
14. Erasmus’s generation had succeeded in making it illegal from 1807 to trade slaves in the British Empire, but Charles was surrounded by friends and family campaigning against cruelty in the plantations. Sufficiently egalitarian to choose a freed slave as a taxidermy teacher at Edinburgh, he responded angrily to slavery throughout his life. On landing at Brazil in 1832, he was

appalled to witness at first hand the atrocities he had been hearing about all his life. “The extent to which the trade is carried on,” he wrote in his diary; “the ferocity with which it is defended; the respectable (!) people who are concerned in it are far from being exaggerated at home” (Browne, 198). Reworking his Wedgwood grandfather’s slogan, he fumed that black slaves “are ranked by the polished savages in England as hardly their brethren, even in Gods [*sic*] eyes.” (Browne, 198). In *The Loves of the Plants*, his Darwin grandfather had poetically evoked the feelings of African mothers as they watched their children being shipped abroad by inviting his British readers to imagine the grief of the American plant *Cassia* as its black seeds are washed in the opposite direction across the Atlantic to Norway (Darwin, *Loves*, III, 411-18). Similarly, Charles invited fathers to imagine the fear “of your wife and your little children...being torn from you and sold like beasts to the first bidder.”¹¹

II. Textual connections

15. As a student at Edinburgh, Charles Darwin was already sufficiently interested in his grandfather to read Anna Seward’s biography, and his marginal annotations in his grandfather’s books show that he read them closely (Browne, 83-5; Di Gregorio and Gill). In particular, he was familiar with the two books in which Erasmus most explicitly expressed evolutionary ideas—*Zoonomia* and *The Temple of Nature*. Some direct influences are easily apparent. For example, from *The Temple of Nature*, Charles borrowed for his own notebook his grandfather’s observation of a wasp deliberately tearing the wings off a fly to make it easier to carry, while he used *Zoonomia* as an important source of medical information for *The Expression of the Emotions in Man and Animals* (Montgomery, 39-41).
16. Unwillingly pushed to follow family tradition and become a doctor, Charles studied *Zoonomia* during his short-lived spell as a medical student, when he discussed its revolutionary implications with Robert Grant. Highly regarded for its attempt to classify animal life and hence “to unravel the theory of diseases” by dividing them into four categories, this large medical text was deemed so subversive that it was put on the Vatican’s banned list. For many years, Erasmus had held back from publication (perhaps another inherited family trait?), but he eventually decided to go ahead, telling his son Robert (who became Charles’s father) that “I am now too old and hardened to fear a little abuse”—every horse, he continued, must expect to be bitten by a fly (Charles Darwin, 102). The chapter “Of Generation” aroused particular controversy:

“Lamarck concisely forestalled by my grandfather”, Charles noted in the margin (Di Gregorio and Gill, 185). Here Erasmus suggested “that in the great length of time, since the earth began to exist...warm-blooded animals have arisen from one living filament...possessing the faculty of continuing to improve by its own inherent activity, and of delivering down those improvements by generation to its posterity...” (Darwin, *Zoonomia*, I, 505). This claim was triply offensive: it contradicted the Bible by extending the age of the earth; it implied that after some unspecified original act of creation, living beings could be produced without divine intervention; and—again contrary to orthodox religious beliefs—it maintained that the living world had developed, rather than being created by God exactly as it is now.

17. Although remaining uncertain, Charles Darwin was definitely thinking about evolution several years before he travelled on the *Beagle*. A few months after returning from his voyage, he spent a week at his parents’ house, where he started his Notebook B (<http://darwin-online.org.uk/content/frameset?viewtype=side&itemID=CUL-DAR121.-&pageseq=2>). On the very first page, he wrote “Zoonomia,” underlining his title as if to continue his grandfather’s initiative. He immediately commented that sexual reproduction holds the key to generation, perhaps recalling his grandfather’s descriptions of male organs suited for procuring female mates, such as a stag’s branched horns or a quail’s spurs (Darwin, *Zoonomia*, I, 503). By page four of this notebook, Charles had noted an early intimation of natural selection under environmental pressures, speculating how a species might be adapted and altered in response to a changing environment. It was in this “Zoonomia” notebook (p. 36) that he sketched his first version of an evolutionary tree.
18. For both Darwins, one aspect that especially shocked their critics was the absence of divine direction. At the very beginning of his literary career, Erasmus was already fretting over apparent redundancies such as male nipples, wondering if they could be vestigial traces left over from long processes of transformation stretching back for aeons. By the time he came to write *The Temple of Nature*, he had been sifting these ideas carefully, familiarizing himself with the theories of continental scholars such as Georges Buffon and Johann Blumenbach, and repeatedly modifying his arguments to accommodate the latest observations and suggestions. Charles’s pencil marks reveal that he paused at this particular suggestion by his grandfather: “Perhaps all the productions of nature are in their progress to greater perfection!” (a surmise recycled from a footnote on turmeric in *Loves of the Plants*).¹²
19. Progress pervaded Erasmus’s evolutionary vision, and he wrote about “the improving

excellence observable in every part of the creation” as if Nature were constantly striving to better herself.¹³ His absentee God gave the first spark of life to matter, but then withdrew, standing back as living creatures evolved according to natural laws (although he is vague about how that might happen). He tried to protect himself against accusations of atheism by stressing that his atomic doctrine “would strengthen the demonstration of the existence of a Deity, as the first cause of all things.” (Darwin, *Zoonomia*, I, 533). However, like Charles’s, Erasmus’s processes of change had no final purpose, no overall plan imposed by God, and it was this point that horrified his most influential commentator, William Paley.

20. Charles Darwin would later slate a book that had been written in part to countermand the ideas of his own grandfather. In 1802, the year Erasmus died, Paley published *Natural Theology*, famous for its watchmaker analogy supporting the view that God the Great Designer had created a teleological universe. Paley devoted several pages of his book to damning an opponent who remained unnamed, but was easily identified by contemporary reviewers as Erasmus Darwin. In Paley’s eyes, Darwin represented yet another threat to Christianity at a time when it was under attack from French revolutionaries and British philosophers such as David Hume.¹⁴ Although Erasmus had no opportunity to respond, his grandson did (coincidentally, when Charles was a student at Cambridge, he lived in the same rooms that Paley had once occupied). Studying *Natural Theology* was, Charles wrote, “the only part of the academical course which, as I then felt, and as I still believe, was of the least use to me in the education of my mind” (quoted Browne, 97).
21. In order to strengthen their own position, Charles Darwin and his allies effectively suppressed ideas about creation held by Erasmus Darwin. From reading *The Temple of Nature*, Charles knew that his grandfather believed not only in a creation governed by natural laws, but also—far more controversially—that life stemmed from matter in motion rather than from a divine spark. Because of its political and religious ramifications, spontaneous generation was an emotive term. Critics found it easy to condemn any type of suggestion that life could appear by itself, but there were two distinct positions. The more extreme of these, put forward mainly in Germany by Johann Blumenbach and his followers, was to wonder if materialist processes of creation have been happening continually ever since the beginning of the world. Instead, he favoured the less contentious view that there was just one single moment when an initial living germ had been generated, from which all other creatures have descended. Although a substantial group of naturalists held this opinion, they were written out of history by Charles,

who presented evolution by natural selection as the only viable alternative to repeated miraculous creation. This deliberate erasure made evolution by natural selection appear more attractive to Victorian naturalists than it might otherwise have done (Rupke).

22. In *The Temple of Nature*, Erasmus Darwin provided a far more detailed account than in *Zoonomia* of natural processes since that initial act of creation. As if writing a poetic predecessor to *On the Origin of Species*, he argued emotively by relentlessly listing examples, rather than logically by supplying rational proofs—the same rhetorical device for which his grandson was criticised. Similarly, both Darwins relied on close observations of the animal world. For example, Erasmus sought insights into human behaviour by describing how elephants pick up coins, squirrels run around their cages and birds line their nests with moths. Positing that living organisms first appeared deep in the ocean, he maintained that through successive generations these minute beings gradually grew larger, acquiring new forms and functions until whales governed the seas, lions the land, and eagles the air. More daring than his grandson, he included human beings in this depiction of progressive evolution, presenting them as the final culmination of continuous development. Initially, he seems to echo biblical tradition by emphasising their unique superiority:

Imperious man, who rules the bestial crowd,
Of language, reason, and reflection proud...
(Darwin, *Temple*, I, 309-10)

Yet he immediately undermines that conventional view by insisting that even they originated as a microscopic entity, and later emphasises their lowly relatives in the animal world:

— Stoop, selfish Pride! Survey thy kindred forms,
Thy brother Emmets, and thy sister Worms!¹⁵

Both Darwins expressed Malthusian ideas. In *The Temple of Nature*, Erasmus envisioned a constant battle between opposing forces of good and evil. In couplet after violent couplet, wolves tear apart innocent lambs, eagles swoop on helpless doves, and sharks gobble up shoals of fish. When celebrating fecundity, he overwhelmed his readers with illustrations of nature's teeming over-abundance—pregnant poppies, prolific aphids, sex-crazed snails, tadpoles and herring spawn. Death, warfare and disaster, he argued, are essential for preventing a population explosion that would outrun the world's resources:

So human progenies, if unrestrain'd,
By climate friended, and by food sustain'd,

O’er seas and soils, prolific hordes! would spread
Erelong, and deluge their terraqueous bed;
But war, and pestilence, disease, and dearth,
Sweep the superfluous myriads from the earth...¹⁶

His argument is essentially the same as that in Thomas Malthus’ *An Essay on the Principle of Population*, which was published in 1798, when Darwin was working on his long poem. Although there is no documentary evidence that he read Malthus, it seems very likely that he did; in any case, he would surely have come across some of the many reviews that appeared, which—in the fashion of the time—often summarised rather than appraised the book. In contrast, in his autobiography Charles explicitly discussed the significance for him of encountering Malthus, although the edition he read had been substantially revised since the original (King Hele, 2014, 118-19).

23. In addition to agreeing about the self-correcting value of wars and food shortages, Malthus and Erasmus Darwin developed similar moral codes, but with different justifications. According to Malthus, God created evil to spur people into greater activity, an argument from design that strongly influenced Paley. One interpretation of this line of thought is that people should not let themselves be submerged in despair by wrong-doing, but instead should constantly act to overcome wickedness and improve the life of those around them. Erasmus removed the emphasis on God and instead based altruism on a rational argument. Referring to Pythagoras, he explained that when any plant or animal dies, its atoms will eventually be recycled—whether “a Monarch or a mushroom,” as he put it provocatively (Darwin, *Temple*, IV, 383). Tiny particles of matter are constantly circulating through the cosmos, so that today’s lovers may contain remnants of yesterday’s enemies. This physical model led him to formulate an ethical model endorsing cooperation.
24. In his personal copy of *The Temple of Nature*, Charles Darwin marked several passages, including these lines, in which his grandfather painted nature as a battlefield:

—Air, earth, and ocean, to astonish’d day
One scene of blood, one mighty tomb display!
From Hunger’s arm the shafts of Death are hurl’d,
And one great Slaughterhouse the warring world!
(Darwin, *Temple*, IV, 63-6)

A couple of months later, he read Malthus’s *Essay*, and he explained in his autobiography that

it prompted him to go still further in considering the struggle for survival in the face of competition for scarce resources (Browne, 384-90) But perhaps he gave insufficient credit to his grandfather’s ideas? In his poem, his grandfather had highlighted warfare between different animals, but in *Zoonomia*—Charles’s acknowledged source of influence—he had discussed sexual selection within species. It was Erasmus, not Charles, who wrote: “The final cause of this contest amongst the males seems to be, that the strongest and most active animal should propagate the species, which should thence become improved.” (Darwin, *Zoonomia*, I, 503).

Conclusion

25. The extent of Erasmus Darwin’s influence on his grandson must remain speculative, but it cannot be dismissed. Whether deliberately or unconsciously, authors often reinterpret their memories, and Charles may have leant on his grandfather’s books and ideas more heavily than he was willing to acknowledge. Certainly, he had been enveloped in them since childhood, and who can know to what extent he looked in the mirror (both literally and metaphorically) as he got older, and saw his father and his grandfather staring back at him? In his historical introduction he included in later editions of the *Origin*, he simultaneously acknowledged his grandfather’s innovations yet disowned him, relegating to a footnote the ambiguous remark that “It is curious how largely my grandfather, Dr Erasmus Darwin, anticipated the views and erroneous grounds of Lamarck in his *Zoonomia*...” (Charles Darwin, 1861 xiii-xiv).
26. Ever fearful of a hostile reception, Charles must have been sensitive to every public denunciation of Erasmus. Although he never mentioned “The Loves of the Triangles” in his letters (but he did apparently use paper triangles to investigate the intelligence of worms¹⁷), he presumably flinched on reading about its mockery of Erasmus in Wilberforce’s vindictive review. The *Anti-Jacobin* had issued this satire in three instalments over a period of almost a month during 1798, but as the weeks went by, the humour had become darker and the indictments more savage.
27. According to his close friend Richard Lovell Edgeworth, Erasmus Darwin admired “the wit, ingenuity, and poetic merit” of “The Loves of the Triangles” (Charles Darwin, “Preliminary Notice”, 67). However, this seems to have been a brave front to disguise the depth of his feelings. Although he continued to write for the next four years, after this public mauling he threw away entire passages of the poem he had been working on and substantially redrafted it.

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Eventually, the final manuscript was published a year after his death under a revised title, *The Temple of Nature; or, The Origin of Society*. It appeared in 1803, more than half a century before another book on evolution with a wider scope but a similar-sounding title: *On the Origin of Species*. Inside his own book, Charles Darwin glossed over the thorny problem of life’s origins—but he could never escape his own origins as Erasmus Darwin’s grandson.

Works cited

- Baldwin, John T. "God and the World: William Paley's Argument from Perfection Tradition—A Continuing Influence." *Harvard Theological Review*, vol. 85, 1992), 109-20.
- Barlow, Nora. *The Autobiography of Charles Darwin*. Collins, 1958.
- Browne, Janet. *Charles Darwin: Voyaging*. Pimlico, 1995.
- Burbridge, David. "William Paley Confronts Erasmus Darwin: Natural Theology and Evolutionism in the Eighteenth Century." *Science and Christian Belief*, vol. 10, 1998, 49-71.
- Darwin, Charles. "An Historical Sketch." *On the Origin of Species by Means of Natural Selection (3rd edition)* John Murray, 1861, pp. xiii-xix.
- . "Preliminary Notice." *Erasmus Darwin*, by Ernst Krause, John Murray, 1879, 1-127.
- . "Notebook B". <http://darwin-online.org.uk/content/frameset?viewtype=side&itemID=CUL-DAR121.-&pageseq=2>
- Darwin, Erasmus. *The Economy of Vegetation (The Botanic Garden, Part I)*. J. Johnson, 1791.
- . *The Loves of the Plants (The Botanic Garden, Part II)*. J. Johnson, 1791.
- . *Zoonomia; Or, the Laws of Organic Life*. 2 vols, J Johnson, 1794-6.
- . *The Temple of Nature; or, The Origin of Society*. J. Johnson, 1803.
- De Montluzin, Emily Lorraine. *The Anti-Jacobins 1798-1800: The Early Contributors to the Anti-Jacobin Review*. Macmillan, 1988.
- Desmond, Adrian and Moore, James. *Darwin's Sacred Cause: Race, Slavery and the Quest for Human Origins*. Allen Lane, 2009.
- Di Gregorio, Mario A. and Gill, N.W. *Charles Darwin's Marginalia Vol. I*. Garland, 1990.
- Elliott, Paul. "Erasmus Darwin, Herbert Spencer, and the Origins of the Evolutionary Worldview in British Provincial Scientific Culture, 1770-1850." *Isis*, vol. 94, 2003, 1-29.
- Fara, Patricia. *Erasmus Darwin: Sex, Science and Serendipity*. Oxford University Press, 2012.
- Garfinkle, Norton. "Science and Religion in England, 1790-1800: The Critical Response to the Work of Erasmus Darwin." *Journal of the History of Ideas*, vol. 16, 1955, 376-88.
- Harman, P. M. *The Culture of Nature in Britain 1680-1860*. Yale University Press, 2009.
- Harrison, James. "Erasmus Darwin's view of evolution." *Journal of the History of Ideas*, vol. 32, 1971, 247-64.
- James, William, "Great Men, Great Thoughts, and the Environment." <http://www.uky.edu/~eushe2/Pajares/jgreatmen.html>. Accessed November 12, 2015.

- King-Hele, Desmond. *Erasmus Darwin and the Romantic poets*. Macmillan, 1986.
- . *Erasmus Darwin: A Life of Unequalled Achievement*. DLM, 1999.
- . *Erasmus Darwin and Evolution*, Stuart Harris, 2014.
- McNeil, Maureen. *Under the Banner of Science: Erasmus Darwin and his Age*. Manchester University Press, 1987.
- Montgomery, William. “Charles Darwin's Thought on Expressive Mechanisms in Evolution.” *The Development of Expressive Behavior: Biology-Environment Interactions*, edited by Gail Zivin, Academic Press, 1985, 27-50.
- Paley, William. *Natural Theology*. 1802.
- Rupke, Nicolaas. “Darwin’s Choice.” *Biology and Ideology from Descartes to Dawkins*, edited by Denis R Alexander and Ronald L Numbers. University of Chicago Press, 2010), 139-164.
- Secord, James A. *Victorian Sensation: The Extraordinary Publication, Reception, and Secret Authorship of Vestiges of the Natural History of Creation*. University of Chicago Press, 2000.
- Smith, C U M and Arnott, Robert. *The Genius of Erasmus Darwin*. Ashgate, 2005.
- St Clair, William. *The Godwins and the Shelleys: The Biography of a Family*. Faber & Faber, 1989.
- Stones, Graeme. *Parodies of the Romantic Age*. Pickering & Chatto, 1999.
- Tennyson, Alfred Lord. *The Princess*. <http://www.gutenberg.org/files/791/791-h/791-h.htm> . Accessed September 22, 2017.
- Wilberforce, Samuel. “Review of *On the Origin of Species*.” *Quarterly Review* vol. 108, 1860, 225-64.

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² See, for example, McNeil; books by King-Hele; Smith and Arnott.

³ This is an imaginary biography by me, not a quotation.

⁴ Unlike Erasmus Darwin, Tennyson favoured divine direction.

⁵ Barlow, pp. 149-66 (quotations p. 149, p. 153).

⁶ Quoted Barlow, p. 224 (from an unpublished letter).

⁷ Wilberforce, pp. 254-5. For a transcript and discussion of “The Loves of the Triangles,” see Fara, pp. 30-42, 259-79. For information about repeated publications, see St Clair, pp. 192-6, Stones, pp. xlv-lx and De Montluzin, pp. 21-5.

⁸ *Liverpool Mercury*, 17 Aug 1878; *Pall Mall Gazette*, 31 Jan 1870 (I have restored the capitalization of the original).

⁹ *Daily News*, 22 Nov 1888. On 17 September 2008, I found 31 hits on “loves of the triangles” in “19th century British Library newspapers” (<http://find.galegroup.com/bncn>) and eight in “19th century UK periodicals” (<http://find.galegroup.com/ukpc/retrieve>). It was still referred to in the twentieth century (eg *Illustrated London News*, 16 Nov 1907, p. 725; reviews by G K Chesterton).

¹⁰ Darwin, Charles, ‘Preliminary Notice,’ p. 15 (letter to Dr Okes of Nov 1754); for Charles’s religious views, see Browne, pp. 325-7 396-9, 438-9.

¹¹ Desmond and Moore, pp. 12-22, quotation p. 16. Desmond and Moore make a stronger argument by identifying Darwin’s anti-slavery fervour as the driving force behind his search for an evolutionary account that would provide rational ammunition for the abolitionists’ cause.

¹² Darwin, *Temple of Nature*, p. 54n of the copy CCA.24.64; Darwin, *Loves*, note to I, 65. I owe this discovery to Harman, p. 310; I am grateful to an anonymous reviewer for pointing out that for the 1791 edition, Darwin substantially lengthened his original footnote on turmeric of 1789.

¹³ Darwin, *Zoonomia*, I, 509; see Harrison

¹⁴ Paley, pp. 463-73; *Edinburgh Review* 1 (1802-3), 301-3. See Baldwin, Burbridge, Elliott, Garfinkle.

¹⁵ An emmet is an ant. Darwin, *Temple of Nature*, p. 120 (III, 433-4).

¹⁶ Darwin, *Temple of Nature*, p. 159 (IV, 369-74). The opening quotation marks are in the original, i.e. they are part of the poem.

¹⁷ Letter of 1881: <http://www.darwinproject.ac.uk/entry-13058>; unfortunately, when the site was accessed on 18 Sep 2017, the text of the letter had not yet been released.