



FEATURE

Bite-Sized Darwiniana: *The Origin of Darwinism: Charles Darwin and The Origin of Species*

Michael D Barton

The theory of evolution put forth by Charles Darwin in 1859 and the modifications given to it by endless contributions by biologists over the last century and a half is the best explanation for the diversity of life on earth. Darwin's "one long argument"—as he called it—also changed the way we think about aspects of our lives beyond biology: society, culture, economics, religion, politics, the list could go on. So, when someone considers Darwin, are they referring to the man (Charles Darwin, 1809–1882), his ideas (much more than just evolution), his influence (his name took on a lineage of its own), or his legacy (his life and work remain highly debated today)? It is a topic with a grand scope of material to digest. One could spend a life time reading books and articles written about Darwin and evolution, yet in the busy and quick access world of today, there is value in small, concise collections of material for the non-specialist to peruse and become acquainted with a topic.

Such is *The Origin of Darwinism: Charles Darwin and The Origin of Species* (Randerson 2012), a selection from the UK newspaper *The Guardian's* series of e-books, Guardian Shorts, which "bring you the very best of our journalism, comment and analysis, from breaking news to the season's sports and culture." They are simply a collection of *Guardian* articles from varied authors that explore a single theme, downloadable in various e-book formats. The website (<http://guardianshorts.co.uk/>) describes *The Origin of Darwinism* as a "remarkable collection of writing on Darwinism, from Richard Dawkins to Richard Harries, that examines the origins of Darwin's great idea and its impact today." The editor of this seventy-page collection is James Randerson, science and environment news editor for the *Guardian*. Randerson selected the articles, selected excerpts from Darwin's *On the Origin of Species*, and provided a main introduction and introductions to the three parts: "The origin of an idea", "The theory's reception", and "Darwin and faith".

In his introduction, Randerson begins by discussing an 1860 article in the newspaper's ancestor (the *Manchester Guardian*) that stressed the human connection to Darwin's theory despite Darwin's remaining rather silent on the topic (until, of course, he published *The Descent of Man* in 1871). "By puncturing the historical self-image that perceived humans as being closer to the angels than ocean-dwelling bottom feeders," Randerson writes, "... evolution by natural selection prompted violent reactions." This distinction, what evolution says about humanity's place in nature, is central to how Darwin was perceived in his day and through the present.

First up, biologist Richard Dawkins shares “Why Darwin matters” (also the title of a 2007 book by skeptic Michael Shermer). Darwin matters because his theory of evolution by natural selection is simple and elegant, and comes with much explanatory power. In contrast, Dawkins argues that “intelligent design” is “the polar opposite of a powerful theory”: to claim that something has its current form because a designer created it this way is to explain nothing. Dawkins also discusses the application of Darwin’s theory to “every available field of human discourse, whether it is appropriate or not.” He is quick to note that social Darwinism (Hitler’s National Socialism, especially) falls into the “not appropriate” category: a subtle response to the anti-evolutionist claim that Darwin somehow was responsible for 20th-century Nazi atrocities. Dawkins ends by noting that “Darwin triumphantly dispelled [the] delusion” that the complexities seen in nature needed a complex explanation. Sometimes simple is best.

The first selection in Part 1, “The origin of an idea,” is from English novelist Ian McEwan. He describes how Darwin was pushed to publish his theory when he received a manuscript from the naturalist Alfred Russel Wallace, who was in the field in Southeast Asia, detailing the same theory: natural selection. McEwan recounts Darwin’s concerns over priority and the joint reading of his and Wallace’s papers before the Linnean Society in 1858, leading to the publication of *On the Origin of Species* in 1859. While nothing is new in McEwan’s “On the originality of species”, he tells a familiar story beautifully.

The next selection from Caroline Davies, a writer for the *Guardian*, is perhaps one of the treasures of this collection. She describes how Darwin spent his money as a student at the University of Cambridge, using recently uncovered university bills. These were formative years in Darwin’s life, right before he went on the *Beagle* voyage. The bills show that Darwin was not so concerned with spending money on his studies, but rather his meals and activities outside of school. They also show that Darwin was indeed a gentleman naturalist, for “the books also contain accounts for his barber, grocer, tailor, chimney-sweep, apothecary, porter, brazier, scullion (servant), glazier, hatter, smith, laundress, linen-draper and painter, among others.” And he was happy to shell out extra money to have fresh vegetables with his meals.

Biologist Armand Leroi writes about Darwin’s time in the Galápagos Islands, noting that the popular mythology of Darwin visiting the islands and—eureka!—discovering evolution there is “wrong, of course”. But even if this location is not the interpreted discovery site of scores of writers who have told a misleading story about Darwin, “the Galápagos do matter”. As a biological laboratory, biologists from Darwin’s day have descended upon the Galápagos to watch natural selection in action. Leroi goes on to describe what evolution means to him, “like a river that divides into a vastly complex delta of possible paths, and there is no saying which one will be chosen.” It is important, Leroi insists, that we understand the world of living things. While he mentions that visiting the Galápagos was like being on “hallowed ground”, his appreciation of Darwin is respectable and not hagiographic. Darwin is not a saint, but a historical figure to be remembered, appreciated, and put in context. Biology has expanded much beyond Darwin, but is still full of, Leroi quotes Darwin, “endless forms most beautiful and most wondrous” (unfortunately, the word is “wonderful,” not “wondrous”).

Part 1 ends with Randerson's first of four abridged selections from Darwin's *On the Origin of Species*. Here Darwin states that he is to address "that mystery of mysteries"—the origin of species—noting that what he is offering will go against the idea the species had been independently created (by God, one would assume). In the introduction, Darwin also explains to his readers that his book is but an abstract of a planned larger work, and mentions "Mr Wallace". He lays out his chapter topics, and ends by stating that he is "fully convinced that species are not immutable" and that "Natural Selection has been the main but not exclusive means of modification."

Part 2, "The theory's reception", begins with "The prose that launched a scientific revolution" by *Guardian* writer Justin Quirk. While noting that "the bulk of *Origin* reads, it must be confessed, like the transcript of a lecture," through his writing Darwin "conveys a boundless sense of wonder at the world around him" and "argues against himself brilliantly." A selection from Darwin's third chapter, "Struggle for existence," follows. Here Darwin describes "the doctrine of Malthus applied with manifold force to the whole animal and vegetable kingdoms." Just as man struggles to survive, competing for resources, so do plants and animals. This struggle for existence leads to some individuals surviving and others not.

Science writer Tim Radford, in "Developing the idea", notes that Darwin's evidence "was assembled painstakingly through decades of observation, note-taking and inquiry, quietly at home in his study and garden at Down House in Kent." And while many in Darwin's time accepted his conclusion that life had evolved, Radford reminds us that some did not accept natural selection as the mechanism, "Darwin's bulldog" Thomas Henry Huxley included.

Next is a selection from Darwin's fourth chapter, where he lays out his prime mechanism for descent with modification. "This preservation of favourable variations and the rejection of injurious variations, Darwin writes, "I call Natural Selection." These variations result from the struggle for existence, and Darwin notes the accumulative effect over time and how this affects human perception:

It may be said that natural selection is daily and hourly scrutinising, throughout the world, every variation, even the slightest; rejecting that which is bad, preserving and adding up all that is good ... We see nothing of these slow changes in progress, until the hand of time has marked the long lapse of ages, and then so imperfect is our view into long past geological ages, that we only see that the forms of life are now different from what they formerly were.

Darwin historian John van Wyhe, editor of the websites Darwin Online and more recently Wallace Online, offers a variety of Darwin myths to consider. Darwin did not sail to the Galápagos to "discover" evolution, nor did he claim that humans evolved from monkeys. Darwin was not an atheist, as many would like to think he is, but he did not renounce evolution and convert back to Christianity on his deathbed. There are a few other myths that van Wyhe discusses, as well as some that he has dispelled elsewhere but did not include in this article (such as whether or not Darwin was the appointed naturalist on HMS *Beagle*, and why Darwin delayed twenty years in publishing his theory). Part 2 ends with a selection from *On the Origin of Species* in which Darwin discussed difficulties with his theory.

Here, he shares why he thinks species now exist as “well-defined objects, and do not at any one period present an inextricable chaos of varying and intermediate links.”

Part 3 of this collection concerns “Darwin and faith”. Randerson notes standard polling that shows only 40% of Americans accept evolution by natural selection, and that the modern form of the creationist movement—“intelligent design”—was essentially already rebutted by Darwin himself. The selection from Darwin here, also from the chapter about difficulties with his theory, concerns the evolution of the eye. He anticipates criticism about how natural selection could account for such a structure, and provides an answer. This is Darwin at his best in *On the Origin of Species*, showing his ability to see what problems he may have, foresee what others might object to, and to provide a response. This selection also contains an oft-quoted phrase that has many times been used to suggest that Darwin doubted his own theory.

Young-earth creationists and “intelligent design” advocates have many times shared this quote:

To suppose that the eye, with all its inimitable contrivances for adjusting the focus to different distances, for admitting different amounts of light, and for the correction of spherical and chromatic aberration, could have formed by natural selection, seems, I freely confess, absurd in the highest possible degree.

It is shared in books, articles, blog posts, Twitter feeds, any possible avenue for someone trying to convince others that even Darwin himself was reluctant to accept his own theory. Yet, if one continues to read on, and Randerson includes the full paragraph, Darwin shows how he thinks natural selection can account for the evolution of the eye. The sentence following “absurd in the highest possible degree” even begins with “Yet reason tells me...” Following this selection, Randerson shares an article of his own, “How Darwin anticipated the ‘intelligent design’ argument,” essentially how Darwin’s argument about the eye is akin to the “intelligent design” argument about irreducible complexity in cellular structures like the bacterial flagellum.

The next two selections in Part 3 seem out of place as they do not concern religion. In “Darwin’s matrimonial dilemma”, Randerson shares how Darwin wrote up a list of pros and cons for whether or not to get married (he did, to his cousin Emma Wedgwood in 1838). Historian Alison Pearn, in “At home with the Darwins”, shows us a Darwin that balances family life and work at Down House. Despite rare travel, “It would be wrong to think of him either as a recluse or an unknown.” Darwin experimented at home, corresponded with all manner of people from across the globe, writing and receiving many letters daily (“a military style campaign to gather and marshal ‘great quantities of facts’”, as Pearn describes it), and was an active participant in the doings of his village.

Next is the final selection from *On the Origin of Species*, which comes from Darwin’s concluding chapter. Here the reader gets Darwin again discussing objections to his theory, but more likely one would appreciate also getting to read Darwin’s famous final paragraph and closing sentence:

There is grandeur in this view of life, with its several powers, having been originally breathed into a few forms or into one; and that, whilst this planet has gone cycling on

according to the fixed law of gravity, from so simple a beginning endless forms most beautiful and most wonderful have been, and are being, evolved.

A perhaps equally profound sentence comes a paragraph before the final one. To counter the claim that to state humans evolved from other animals would lessen humanity, Darwin wrote: “When I view all beings not as special creations, but as the lineal descendents of some few beings which lived long before the first bed of the Silurian system was deposited, they seem to me to become ennobled.” Humans and “all beings” are to be together appreciated.

Another selection from science writer Tim Radford looks at the book itself. Radford notes that Darwin received much criticism from within the scientific community as well as from the religious establishment. *On the Origin of Species* was a bestseller, and Darwin received royalties, but it “failed the Alice in Wonderland test for a useful book: it had no pictures or conversations.” The book is famous for going unread yet everyone has an opinion about it. For Radford, “Origin meets the test for a great book: it mattered then, and it matters now.” In “Darwin’s complex loss of faith”, Nick Spencer, the director of the think tank Theos, notes that Darwin’s loss of his Christian faith was “gradual and complex”. There were many factors attributable to it, yet Darwin myth-buster John van Wyhe would perhaps counter the claim that the death of Darwin’s daughter Annie “destroyed what was left of his Christian faith” (van Wyhe and Pallen 2012).

The former Bishop of Oxford Richard Harries addresses reconciling one’s religion with evolution in “Natural selection is not an obstacle to faith”. The rise of fundamentalism in America and the later rise of Richard Dawkins versus the creationists obscures the history that following the publication of *On the Origin of Species*; many Christians accepted evolution and found no conflict. In “Seals, evolution and the real ‘missing link’”, evolutionary biologist Kenneth Miller discusses evidence for evolution and how it is “an epic at the centre of life itself.” There is meaning in this, whether one is religious or not (Miller is a devout Catholic). To accept evolution (it is not a belief, for one’s inclination to acceptance should be based on evidence) is “to become a knowing participant, in the truest sense, in the living world of which we are all a part.”

The evolutionary geneticist Laurence Hirst looks at “Darwin in the genome,” asking what Darwin would have thought about the Human Genome Project (Darwin knew nothing about genes or genomes, let alone Mendelian genetics). “Contained in the patterns of similarity is the history of continuity of species,” Hirst writes. The similarity in genes between species shows evolutionary relationships. While this seems simple enough, Hirst goes on to describe more complex issues about the human genome concerning junk DNA and where the genome is active.

And finally, paleontologist Simon Conway Morris, in “Darwin was right. Up to a point”, discusses what he feels is unfinished business with Darwin’s theory: the “near-miracle of a chemical factory we call the cell” and the human mind. Here Morris, without saying the word God or Christianity, is favorable to “intelligent design” and takes a stab at atheists. Was this a conscious decision by the editor to end a series of largely favorable pieces on Darwin with one that would stir up a response? Perhaps. Both biologists PZ Myers and Jerry Coyne critiqued this piece by Morris.

In his conclusion, Randerson calls evolution by natural selection the “binding glue” of biology. Evolution has come a long way since Darwin’s book, but despite new revolutions in biology over the last 150 years, nothing “has knocked down the central idea.” This ebook would gain a little if Randerson had shared what edition of *On the Origin of Species* the selections were taken from (the first edition of 1859), as well as showing the original dates of publication for each of the Guardian articles. The placement of a few articles having nothing to do with religion in the part on “Darwin and faith” is unfortunate, but perhaps Randerson felt they did not necessitate a section of their own and need to be lumped in somewhere. As a collection of articles about Darwin and evolution, written largely during the bicentennial of Darwin’s birth and showing some differences of opinion, *The Origin of Darwinism: Charles Darwin and The Origin of Species* serves as a nice introduction for anyone wishing to get familiar with this vast and often heated topic.

REFERENCES

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ABOUT THE AUTHOR

Michael D Barton graduated from Montana State University in 2010 with a master’s degree in history. His research concerned the role of John Tyndall as a supporter of Charles Darwin, and he was a participant in the John Tyndall Correspondence Project (<http://www.yorku.ca/tyndall/>). He blogs about Darwin, evolution, and the history of science at The Dispersal of Darwin (<http://thedispersalofdarwin.wordpress.com/>). He currently lives in Portland, Oregon.

AUTHOR’S ADDRESS

Michael D Barton
c/o NCSE
PO Box 9477
Berkeley CA 94709-0477
info@ncse.com



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