

DARWIN'S BLUFF

The Mystery of
the Book Darwin
Never Finished



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INTRODUCTION

DOES THE WORLD NEED ANOTHER BOOK ABOUT CHARLES DARWIN? What can anyone say that has not already been said about this seminal figure, considering the wealth of literature written about him? The simple answer is yes, we do need another book about Charles Darwin, for there are aspects of his life and work that have surprisingly continued to evade the attention of his many biographers and interpreters.

The very human Charles Darwin has grown into a mythological figure—the paradigmatic example of a true scientist—without whom nothing in biology would make sense, in the words of Theodosius Dobzhansky. Unfortunately, this mythological figure would be scarcely recognizable to Darwin's own contemporaries.

Happily for the present enterprise, the flesh-and-blood Charles Darwin is considerably more interesting than the two-dimensional Darwin of the hagiographies.

The state of his scientific legacy is also more intriguing than those same hagiographies would allow—intriguing because it is embattled in ways confessed to in some of the peer-reviewed literature and at high-level scientific conferences but rarely acknowledged beyond these specialized contexts.

Modern scientific advances in fields like molecular biology, genomics, epigenetics, paleontology, developmental biology, and more are raising significant questions about the power of the Darwinian mechanism of variation and natural selection to account for the evolutionary history of life on earth. Some are calling for an extended

evolutionary synthesis while others believe the entire Darwinian edifice needs to be overhauled. It is no longer clear that Darwin can be said to have answered the question of the origin of species. There is thus no reason to begin an investigation into his life and work with the assumption that he did.

One effect of Darwinian mythology has been to downplay the nineteenth-century Englishman's own characterization of *The Origin of Species* as a mere abstract of his species theory, a summary lacking much of the facts, evidence, and authorities he promised would follow in a later work. The *Origin* is usually treated as Darwin's magnum opus, a characterization in keeping with Darwinian mythology but out of step with Darwin's own view of his work. In truth, *The Origin of Species* was an abstract of a much larger book on species that Darwin was working on (and that was three-quarters complete) before events forced him to put the larger book aside and instead publish a mere abstract of it.

Once the *Origin* was in circulation, Darwin's many correspondents anticipated that he would quickly follow up with the publication of his big book on species so they could better evaluate the argument for natural selection made in the *Origin*. Indeed, Darwin himself created this expectation both in the *Origin* and in his correspondence. Even early reviewers of the *Origin* noted the lack of empirical evidence for natural selection but gave Darwin the benefit of the doubt since the *Origin* was a mere abstract and therefore could not be expected to provide all the evidence. Given the anticipation among Darwin's readers for the big book on species, anticipation that Darwin himself repeatedly stoked, why did he never publish the big book? This question is rarely asked.

A rough, handwritten manuscript of Darwin's big book, titled *Natural Selection*, survived among his papers and was published by Cambridge University Press in 1975.¹ Yet despite the easy access scholars now have to this work (I bought a copy on Amazon), there has been little detailed engagement with its contents or comparison of this work with its abstracted form in the *Origin*. Such a comparison proves enlightening, for it serves to highlight the secondary nature of

the *Origin* as a hastily written abstract rather than a finely honed scientific treatise, thus challenging the iconic status of the *Origin* as the foundational text of the modern biological sciences. This, of course, may be precisely why the big book gets overlooked.

Another reason the big book has been largely ignored, I hope to show, is that it does not deliver the promised goods. This, I will also argue, is the best explanation for why Darwin never brought the book to print. It wasn't, as one might suppose, that he had made little headway on it and simply lacked the time or energy to produce it. Abstracts are usually distillations of longer works already in existence. So, if the *Origin*, as Darwin constantly repeats, is only an abstract, it would suggest the big book on species already existed in some substantial form prior to 1859. And in fact, this was the case. The manuscript contained nine chapters and was close to 300,000 words in length. It would likely have been around 400,000 words complete. Given that this book was nearly three-quarters complete, why did Darwin never publish it? And why did he instead turn to the study of orchids as a follow-up to the *Origin*? Because, as will become clear, he came to see that it did not answer some key criticisms that the *Origin* had elicited. So, he abandoned the project, even as he allowed anticipation of its publication to persist for many years.

To be sure, Darwin's orchid book, which he called "a flank movement on the enemy," did attempt to provide some of the evidence for natural selection missing from the *Origin* (and, as it turns out, missing from the big book as well). He tried to outflank his opponents by putting before them an entirely new work on the numerous contrivances (Darwin's word) found among orchid flowers to ensure their cross-fertilization by insects. Surely this would impress his readers with the power of natural selection to evolve all these exquisite contrivances.

But Darwin's strategy failed. Reviewers of his orchid book read it as providing evidence for natural theology, not natural selection. And surprisingly, even Darwin himself in one place likened his orchid book to the Bridgewater Treatises, a series of writings designed to extol the power of God manifest in nature! Could anything be more ironic than that Charles Darwin, the poster child for the triumph of

scientific naturalism in biology, actually advanced the cause of natural theology in his day? This is an aspect of his life and work that has been entirely erased by the prevailing mythological Darwinian narrative.

For all these reasons, a more nuanced assessment of Darwin's evolutionary writings is warranted.

In my engagement with Darwin, I will give pride of place to his voluminous correspondence as the evidentiary basis of this more critical portrait of a truly enigmatic Victorian figure. The argument that lies ahead cites more than 250 letters written by and to Darwin up to the year 1863, some never cited in Darwinian biographies. These letters represent Darwin's engagement with more than seventy friends, family members, and scientific correspondents. I have elected to adorn the book with many direct quotations from these letters, since I think it is crucial for readers to hear Darwin's own voice on the page as much as possible to truly encounter the thought patterns and rhetorical style of this fascinating individual.

Many of Darwin's biographers take the reverse approach—providing their own paraphrases of Darwin's words—which has the effect of subordinating Darwin to the mythological figure the biography exists to perpetuate. I have also elected, for authenticity's sake, to retain Darwin's spelling and punctuation rather than correct them to modern standards. We need to let Darwin speak for himself. Given the opportunity, it turns out that Darwin is quite capable of dismantling his own mythology.

Who Was the Real Charles Darwin?

In searching for this more authentic Darwin, we will pay particular attention to the many letters he wrote and received up through the year 1863. Unless otherwise noted, all letters mentioned in this book are taken from Frederick Burkhardt et al., eds., *The Correspondence of Charles Darwin*, Vols. 1–11 (Cambridge University Press) and can easily be located based on the date and addressee of the letter.² In addition, an index of letters cited, arranged chronologically, appears in the back matter of the book. (Many of these letters are, as of this writing, freely available online at the Darwin Correspondence Project.)

Chapter 1 will limn the mythological Darwin found in many of his biographies, show how even mainstream biographers have begun calling that portrait into question, and begin to show how Darwin himself contributed to the mythology. The opening chapter will pay particular attention to one rhetorical technique Darwin employed almost obsessively, involving his health.

Chapter 2 considers Darwin as a geologist. Long before he turned to questions about the diversity of living organisms, his main interest was geology. While aboard the *Beagle*, Darwin read Charles Lyell's *Principles of Geology*. Lyell had replaced the geological theory of catastrophism with the principle of uniformitarianism. Catastrophism taught that the earth's geological features resulted from sudden cataclysmic events (like a global flood) while uniformitarianism taught that the earth's geological features could be explained by slow, gradual change brought about by the more mundane processes of wind and water erosion, earthquakes, and volcanic eruptions acting over enormous spans of time. Darwin was convinced by Lyell's theory and spent much of his time in South America seeking evidence for it.

After the voyage, Darwin continued his interest in geology, developing a theory on the origin of the parallel roads of Glen Roy in Scotland as well as a theory about coral reefs. Why is Darwin's early interest in geology relevant for his more famous biological work? First, because it challenges the commonly accepted notion that the *Beagle* voyage was absolutely formative for Darwin's species work, and second, because some of Darwin's geological theories turned out to be wrong, shining a light on some of his weaknesses as a scientist.

Of course, Darwin did eventually turn to the species question and began trying to accumulate evidence for it. This involved running various experiments. Chapter 3 focuses on this side of Darwin. He had little formal training in science, his only university degree being the general Bachelor of Arts degree from Cambridge. Did it show in the way he conducted his experiments? What kinds of experiments did he run, and what did he think about the results? Do his letters describing these efforts suggest the competence of a

professional experimenter, or is the portrait that emerges more that of a plucky amateur? And if the latter, what light does this shed on the *Origin*?

Chapters 4 and 5 focus on the writing and publishing of the *Origin*, and the responses to the book. What was Darwin's thought process as he wrote his abstract? Why did he encourage his readers to view it as only an abstract? How did people respond to the book? How did Darwin respond to his critics? And just how confident was Darwin that he had solved the problem of the origin of species?

Chapter 6 turns to Darwin's big book. Darwin drafted most of it, repeatedly promised that he would finish and publish it, but ultimately declined to do so. Happily for contemporary scholars, the unfinished manuscript was published a century later. The work has received surprisingly little attention, given that it is Darwin's big, promised book. After all, it was supposed to provide the crucial evidence for the miraculous creative powers of natural selection, evidence that he conceded was largely absent from his "mere abstract," *The Origin of Species*. In this chapter we will give it the attention it deserves, explore the question of why Darwin left it unfinished and unpublished, and see what the book can teach us about Darwin the man and his theory of evolution.

Chapter 7 turns to the curious fact that Darwin, immediately after publishing the *Origin*, immersed himself in the study of orchids and the many ways they were structured to ensure their cross-fertilization by insects. The readers of the *Origin* were awaiting the appearance of Darwin's promised big book on natural selection so that they could better evaluate the arguments presented in Darwin's abstract. So why did Darwin put aside the big book and turn to botany, something he referred to as a mere hobby-horse? I have suggested an answer above, but there is much more to be said on the matter.

In a final chapter, I will consider several ways that Darwinian mythology obscures other aspects of Darwin and his work. For example, while it is true that Darwin came from abolitionist roots and himself detested slavery, what were his real views on race and racism? To what extent, if any, was Darwin himself partly responsible for the

development of later scientific racism and the eugenics movement that drew on his work?

Likewise, what about his views on gender roles and sexuality? Darwin's sexual selection theory has recently come under the microscope of scientifically informed feminist theorists. Are Darwin's arguments for sexual selection as an important driver of evolutionary change merely unfashionable politically, or are gender theorists and other critics of the idea pointing up significant evidential and logical problems with the idea?

Finally, if Darwin and the *Origin* have been mythologized, what about the modern version of his theory? Is there a bluff here as well? Or, as is regularly claimed, is the present state of the evidence for modern evolutionary theory truly overwhelming?

In general, a detailed engagement with Darwin's correspondence will paint a picture of a very insecure amateur naturalist desperate to make a mark in science but acutely aware of his limitations. Though a prodigious collector and cataloger of facts and observations, and as someone who made real scientific contributions to the description of organisms like barnacles and orchids, Darwin knew that he had fallen well short of cinching the case for the evolution of all life via natural selection, and he knew that his critics also knew this. But unable or unwilling to admit this, Darwin hid behind a variety of rhetorical devices that allowed him to keep up the appearance that he had indeed solved the "mystery of mysteries," as he called it.³

This more critical appraisal of Darwin's work should not be viewed in a purely negative light. Wading through the Darwinian correspondence over these last several years has brought me to a place of real appreciation for aspects of Darwin's personality and work. I admire his undying devotion to his family and friends and his acute sense of humor. I marvel at his incredible patience and industry in collecting encyclopedic quantities of facts and observations. And I certainly can sympathize with his anxieties over publishing such a revolutionary new theory. If someone ever creates a time machine, I will be first in line with the dials set to Down House to meet the man I feel I already know so intimately through his letters and works. That said,

Darwin was a mere human with foibles and faults like all the rest of us, and he was a product of his times. But this more human Darwin so infrequently emerges from the literature about him that I will do my best to let him emerge here.