MYTH 11

# THAT DARWIN WORKED ON HIS THEORY IN SECRET FOR TWENTY YEARS, HIS FEARS CAUSING HIM TO DELAY PUBLICATION

*Robert J. Richards*

There was no way in which Darwin was going to alienate important scientists by revealing his thinking on evolution—he did not do this for twenty years until he was forced into doing so.

—Michael Ruse, *Defining Darwin* (2009)

. . . what has become one of the major themes of this book: [is] Darwin's motives for his long delay in publication. His fear of persecution and ridicule was based not only on the unpopularity of evolutionary theory, but on the fiercer retribution meted out against proponents of materialism.

—Howard E. Gruber, preface to *Darwin on Man* (1974)

Two assumptions of long standing surround the history of Charles Darwin's (1809–1882) *On the Origin of Species:* first, that he worked on his theory for twenty years in secret and did so out of fear. But fear of what? A variety of fears have been attributed to him: fear of being charged with atheism, with materialism, or with bad science—of a charade of science that was embarrassingly speculative, comparable to that of his grandfather, Erasmus Darwin (1731–1802), or that of the French naturalist Jean-Baptiste de Lamarck (1744–1829) (see Myth 10). Then there is the second, associated assumption that these fears stayed his hand

in publishing his theory, delaying the appearance of his great book.

Some time ago, I undertook an investigation of the way scholars dealt with Darwin's supposed delay in publishing the *Origin*.[1] I asked whether this was an interesting problem, for scholars, after all, do not wish to waste time on trivial issues but want to deal with truly interesting questions. But then, what makes an interesting question? Certainly a problem that touches on the principal ideas of a significant figure—that would be quite interesting—and Darwin's alleged delay in publishing meets this criterion. Another condition that determines the interest a problem might have is the expectations of the community of scholars. Darwin expended a huge amount of time and effort on his theory: from the period of his return from the *Beagle* voyage (1836) to the publication of the *Origin* (1859), he incessantly made entries related to his theory in his notebooks; he corresponded with a great many naturalists who might answer questions about species; he investigated nagging problems; he performed extensive experiments; and he began the composition of a book that would have dwarfed the *Origin,* which he regarded as the précis of this larger, never-published tome. So, Darwin's delay appears to be an interesting problem.

A final condition that would fix a problem as interesting is whether scholars have regarded it as such, meaning that when others have treated a question, subsequent scholars will often take it up. The scholarly concern with Darwin's delay began in the wake of the Darwinian anniversary celebrations in 1959, though the attention was scattered and unfocused. For instance, in his *Death of Adam* (1959), John Greene (1917–2008) mentioned in passing that Darwin was extremely cautious in advancing his "bold hypothesis," since his theory, as he admitted to his friend Joseph Hooker (1817–1911), was "like confessing a murder."[2] J. W. Burrow (1935–2009) thought Darwin hesitated because he feared his ideas might be mistaken for the thoroughly savaged transmutational views of Robert Chambers (1802–1871), whose *Vestiges*

*of the Natural History of Creation* appeared anonymously in 1844. Burrow urged that the dread of being taken for simply another evolutionary speculator "haunted Darwin and enjoined caution in announcing his views and patience in marshalling his evidence."[3] Michael Ruse (b. 1940) concurred with Burrow: it was anxiety of being taken for a fumbling amateur, like Mr. Vestiges, that caused him to falter.[4] Howard Gruber (1922–2005) generalized what he took to be Darwin's primal fear. He scrutinized Darwin's notebooks and fell on certain passages that suggested the naturalist had become sensitive to his theory's materialistic implications, which Gruber dramatized as more destructive of the traditions of Western civilization than evolution itself.[5] Stephen Jay Gould (1941–2002) devoted an entire essay to the problem of Darwin's delay; he endorsed Gruber's contention that it was fear of the charge of materialism that shut Darwin down.[6] And Adrian Desmond and James Moore, in their biography *Darwin: The Life of a Tormented Evolutionist* (1991), found the young Englishman's torment to lie in recognition that his theory's materialism aligned him with social radicals and could well bring the opprobrium of his scientific peers crashing down on his balding head.[7] Even the *New Yorker*'s pages have been breached by the celebrity of the issue. Adam Gopnik begins his essay (2006) on Darwin's accomplishment as follows: "Darwin's delay is by now nearly as famous as Hamlet's," and offers what seems the common view, namely, that Darwin delayed publishing because he was "frightened about being attacked by the powerful and the bigoted."[8] Thus, from 1959 through the beginning of the twenty-first century, scholars have offered quite a few reasons for Darwin's supposed two-decade delay in publishing his theory.

But was there a delay? To suppose that Darwin delayed his writing of the *Origin* suggests that the path was open for him to have completed this task much earlier and that only some weakness of resolve—perhaps an unwarranted fear—prevented him. In my own essay, I made the commonplace observation that most

human actions are determined by a matrix of reasons that might impinge on an individual. I thought most of the causes suggested for the twenty-year interval had some weight, and that the task of the historian was to distribute this weight appropriately. But some important factors seemed neglected, namely the complexity of Darwin's growing account and his awareness of the large number of important problems he had to resolve for his theory to be successful.

One of those problems of considerable consequence was the phenomenon of the social insects: the "wonderful instincts" of worker bees and ants—the exact hexagonal cells of the honey bee, the slave-making behavior of some species of ants, and the self-sacrificing actions of soldiers among the social insects. In the 1840s, Darwin became quite worried over the apparent inability of natural selection to explain the cooperative and altruistic behaviors exhibited by these creatures, since selection enhanced the welfare only of the possessors of behavioral traits, not the recipients. But that wasn't even the most serious difficulty. Worker bees and ants are sterile; they leave no offspring to inherit any potentially beneficial behavior. In a manuscript of 1848, Darwin reckoned this "the greatest *special* difficulty I have met with."[9] And in the *Origin,* he stated flatly that he initially thought the problem of instincts of neuter insects "fatal to my whole theory."[10] This was not a difficulty he could let pass unnoticed, since it appeared that only divine wisdom could teach geometry to a honeybee. So here was a problem of significant proportions that did not easily yield a solution. Darwin resolved the difficulty only in 1858, in the throes of actually composing the manuscript that became the *Origin of Species*. Natural selection, he finally determined, operated on the whole hive or community to select just those insect groups that by accident had members displaying advantageous traits.[11]

I've now come to see two other significant problems that Darwin thought he had to solve before his theory could be unveiled. The first was the difficulty of divergence, a problem he

neglected prior to the 1850s: What caused incipient species to diverge in character from one another and different genera to form even greater morphological gaps? He called it "the gravest objection which can be urged against my theory"—obviously forgetting he had nominated another perplexity for the principal source of ice in the blood.[12] Working out the problem of divergence caused him to add something like eighty manuscript pages to the composition of his book.[13]

Darwin knew that a respectable theory in the natural sciences should have a mathematical component, so he set out to mathematically demonstrate species formation. Using twelve large flora books, he statistically analyzed the number of large species against that of small species (that is, large species being those with a large number of varieties and small species being comparably determined); he also calculated the number of large genera (that is, with a large number of species) against that of small genera. His calculations seemed to confirm the pattern of species descent his theory predicted, namely that large genera had large species, which implied that species arose from earlier varieties. Because Joseph Dalton Hooker (1817–1911) recommended that the details of these calculations be omitted from the *Origin*—lest a tempting target be supplied to the mathematicians—Darwin discussed only the conclusions he derived and withheld the numbers.[14] He thus expended great amounts of time and labor in his botanical statistics and then suppressed the evidence.

In addition to solving major problems that took considerable time, there were the experiments Darwin performed to provide the empirical evidence that a good naturalist should marshal. He soaked seeds in seawater over weeks to determine sources of island vegetation; he raised fancy pigeons and crossbred them to uncover descent relationships; he planted plots of different grasses to compare competitive advantages; he dissected embryos of different species to show they more resembled each other than they did their adult forms. These kinds of experiments and others—all

time consuming—provided the evidentiary base for his theory and gave Darwin the authority of an experimenter, showing that he was more than a passive observer.

These are just some of the major obstacles that Darwin had to overcome and the experiments he believed necessary to perform in order to present the most convincing argument for his theory. And, it must not be forgotten, he was making an argument, one "long argument" in his parlance.[15] His other major efforts in publication up to 1859 were mostly descriptive. When he did venture a fairly complex argument for the parallel roads of Glen Roy (1839), he got scorched by Louis Agassiz (1807–1873), who later showed that those Scottish ridges were formed not by marine action, as Darwin believed, but by retreating glacial lakes.[16] Darwin admitted his Glen Roy paper was "a great failure" and he was "ashamed" of it.[17] Crafting the complex argument of the *Origin* simply took time, especially as the possibility of devastating mistakes hovered over the enterprise.

In 2007, John van Wyhe contended that despite the asseverations and assumptions of many scholars over the last half century, the notion of a delay was simply a myth, as was the belief that Darwin kept his theory a secret prior to 1858.[18] Wyhe explained these assumptions as the result of scholars' having accepted uncritically the work of previous historians who didn't have access to the full Darwinian corpus of notebooks, manuscripts, and letters.[19] Wyhe focused his attention on the belief that fear held Darwin back from revealing his theory. He argued that there was simply no evidence that the stolid Englishman refrained from publishing because he blanched at the wrath of the elite.

It is quite difficult to plumb the mind of any individual to discover what motives might ground action or inaction, especially if that person has been dead for quite a long while. The case is a bit different, though, with Darwin. He did leave a broad trail of journal entries, essays, letters, and manuscripts. In light of such evidence, we can make the decently probable inferences that the

two assumptions I have mentioned fall into the category of myths—remembering as we should, however, that there is often a degree of truth traveling in the guise of myth.

It is surely mythic to argue that fear froze Darwin's hand. He continued to work on his theory during the twenty-year interval in question, gathering evidence and unknotting the many difficult problems he faced, as well as dealing with a large family. The tormented evolutionist of Desmond and Moore's biography, an individual who cowered behind the arras, fearful either of the revolutionary mob or the scorn of men of high church and high pretension—that's a myth designed for dramatic effect. Yet Darwin did seem apprehensive about the "persecution of early Astronomers," and he did express his "fear [great evil] from vast opposition in opinion on all subjects of classification."[20] He frequently returned to the materialistic consequences of his theory.[21] He was, of course, quite cognizant of the scientific community's crushing dismissal of the evolutionary ideas of his grandfather, Lamarck, and Chambers. And we should recall it required a shove from Charles Lyell (1797–1875) to get Darwin started on his book. These accumulated signs, each slight in itself, do indicate some wariness, some restraint urging him to spend sufficient time making his theory as formidable as a British man-o'-war. The evidence suggests that Darwin was not an individual paralyzed by fear but one cautioned to make sure his construction could withstand the quakes of the intellectual world.

Wyhe contended that only scholars ignorant of the manuscript evidence would resort to the kinds of reasons just mentioned to explain an imaginary delay. But this argument collapses in a spring breeze. After all, it was precisely evidence from Darwin's notebooks that led Gruber to propose fear of materialism in the first place. Most serious scholars of Darwin's accomplishment are not innocent of the archive, and the signs derived therefrom suggest that reasonable trepidation might well have extended the stretch of time leading to the *Origin*.

Did Darwin keep his theory a secret before 1858? Wyhe asserts that scholars such as Greene, Loren Eiseley, Desmond and Moore, Peter J. Bowler, John Bowlby, Ruse, Janet Browne, Rebecca Stott, and David Quammen failed to mention that Darwin actually leaked his developing ideas to several close acquaintances. This can only be an incautious judgment on Wyhe's part. All of the aforementioned scholars certainly knew that Darwin revealed to Joseph Hooker in 1844 that his views were similar to Lamarck's and that his admission "was like confessing a murder."[22] Most of those scholars have recognized others of Darwin's circle to whom he made his theory known. Bowlby, for instance, lists quite a few such individuals: Charles Lyell, John Henslow (1796–1861), George Waterhouse (1810–1888), Joseph Hooker, Leonard Jenyns (1800–1893), Thomas Wollaston (1822–1878), and Asa Gray (1810–1888).[23] Ruse's judgment, mentioned in the epigraph to this essay, is fair: no prominent naturalists, such as William Whewell (1794–1866), Richard Owen (1804–1892), or Adam Sedgwick (1785–1873), did get advance word of Darwin's theory before 1858, when the joint essays of Alfred Russel Wallace (1823–1913) and Darwin were published in the *Journal of the Proceedings of the Linnean Society.*[24] So, we are left with a secret, but one that Darwin couldn't quite keep.

The assumptions that Darwin delayed publishing his theory and that he kept silent about his work are myths, legends, but ones that surround more than a bit of truth. And printing these legends does signal the great consequence Darwin's theory has had for contemporary intellectual and moral life.

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*Epigraphs:* Michael Ruse, *Defining Darwin* (Amherst, NY: Prometheus Books, 2009), 72; Howard Gruber, *Darwin on Man* (New York: Dutton, 1974), xiv.

1. Robert J. Richards, "Why Darwin Delayed, or Interesting Problems and Models in the History of Science," *Journal of the History of the Behavioral Sciences* 19 (1983): 45–53.

2. John Greene, *The Death of Adam: Evolution and Its Impact on Western Thought* (Ames: Iowa State University Press, 1959), 260.

3. J. W. Burrow, introduction to *The Origin of Species by Means of Natural Selection; or, The Preservation of Favoured Races in the Struggle for Life*, by Charles Darwin (Baltimore: Penguin Books, 1968), 32.

4. Michael Ruse, *The Darwinian Revolution: Science Red in Tooth and Claw* (Chicago: University of Chicago Press, 1979), 185.

5. Gruber, *Darwin on Man,* 202.

6. Stephen Jay Gould, *Ever Since Darwin* (New York: Norton, 1977), 21–27. The essay was first published in Gould's column "This View of Life," *Natural History Magazine* 83 (December 1974): 68.

7. Adrian Desmond and James Moore, *Darwin: The Life of a Tormented Evolutionist* (New York: Norton, 1994; originally published in 1991), xviii.

8. Adam Gopnik, "Rewriting Nature: Charles Darwin, Natural Novelist," *New Yorker,* October 23, 2006, 52–59.

9. The manuscript is held in the Manuscript Room, Cambridge University Library, DAR 73.

10. Charles Darwin, *On the Origin of Species* (London: Murray, 1859), 236.

11. See my *Darwin and the Emergence of Evolutionary Theories of Mind and Behavior* (Chicago: University of Chicago Press, 1987), 142–152.

12. Charles Darwin, *The Autobiography of Charles Darwin, 1809–1882,* ed. Nora Barlow (New York: Norton, 1969), 120–121; Darwin, *Origin of Species,* 280.

13. See my "Darwin's Principle of Divergence: Why Fodor Was Almost Right," in my *Was Hitler a Darwinian?* (Chicago: University of Chicago Press, 2013), 55–89.

14. Ibid., 61–65.

15. Darwin, *Origin,* 459.

16. Charles Darwin, "Observations on the Parallel Roads of Glen Roy," *Philosophical Transactions of the Royal Society of London,* pt. 1 (1839): 39–81.

17. Darwin, *Autobiography,* 84.

18. John van Wyhe, "Mind the Gap: Did Darwin Avoid Publishing His Theory for Many Years?" *Notes and Records of the Royal Society* 61 (2007): 177–205.

19. Ibid., 178.

20. Charles Darwin, *Notebook C* (MS 123 and 202), in *Charles Darwin's Notebooks, 1836–1844,* ed. Paul Barrett et al. (Ithaca, NY: Cornell University Press, 1987), 276, 302; brackets indicate Darwin's insertion.

21. Charles Darwin, *Notebook M* (MS 19 and 57), *Old and Useless Notes* (MS 37, 39, 49v), and *Notebook C* (MS 166), in *Charles Darwin's Notebooks,* 524, 532–33, 614, 616, 618, 291.

22. Charles Darwin to Joseph Hooker (11 January 1844), in *Correspondence of Charles Darwin,* 22 volumes to date (Cambridge: Cambridge University Press, 1985–), 3:2.

23. John Bowlby, *Charles Darwin: A New Life* (New York: Norton, 1990), 254–255, 323.

24. Charles Darwin and Alfred Wallace, "On the Tendency of Species to Form Varieties; and on the Perpetuation of Varieties and Species by Natural Means of Selection," *Journal of the Proceedings of the Linnean Society: Zoology* 3 (August 1858): 45–62.