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## IS DARWINISM ATHEISTIC? AN EXAMINATION OF THE BELIEFS AND PRACTICES OF CHARLES DARWIN

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### SYNOPSIS

During the nineteenth century Charles Darwin introduced his theory of evolution by natural selection. His goal was to show that life was not the result of divine intervention, but the work of blind naturalistic processes. Darwin claimed to have arrived at this truth by working strictly with the facts apart from any preconceived ideas, and this is exactly how most people today perceive Darwinism. Dissenters have argued that Darwinism is not science, but that Darwin superimposed an atheistic/materialistic worldview on nature, then searched for the facts to support his theory. Darwinians responded that Darwin's own writings show that he was not an atheist, but always believed in some form of deity. A careful study of Darwin's writings, especially his posthumously published private notebooks and personal communication, reveals that Darwin was indeed an atheist and his theory of natural selection was formulated to replace a Creator with naturalistic processes.

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The concept of biological evolution is almost as old as life itself. Many men through the centuries expressed the belief that all living beings evolved from a common ancestor. Some attributed this evolutionary process to God and others to nature, but until the nineteenth century, no one had posited a mechanism by which it could have occurred that was remotely plausible.

In 1859, however, Charles Darwin published what is commonly called *The Origin of Species*, or *Origin*.<sup>1</sup> His theory of natural selection working on chance variations revolutionized the world.

Today Darwinism is accepted by many people as a genuine scientific theory. The popularity of his theory is such that anyone who questions it is suspect and "inevitably attracts the speculative psychiatric eye to himself."<sup>2</sup> Dissenters, such as Adam Sedgwick, have argued from the beginning, however, that Darwinism is not science, but is founded on a philosophy of atheism and materialism.<sup>3</sup>

Many Darwinians have denied this assertion, believing that Darwinism is not atheistic. They claim that Darwin was always a believer in God, or that he became an unbeliever many years after he developed his natural selection theory. They argue that religion and evolution can be reconciled and that neither atheism nor naturalism influence belief in evolution.

The truth is that natural selection was Darwin's attempt to provide atheism with its much-needed "creation" story.<sup>4</sup> Scientist Richard Dawkins maintains that because evolution made God unnecessary, "Darwin made it possible to be an intellectually fulfilled atheist."<sup>5</sup> The first step in connecting Darwinism with atheism is to examine the evidence that the theory's founder was an atheist and that the theory was formulated to make God unnecessary.

## DARWIN'S BELIEF

Early in his life Darwin believed in a personal God, Christ, the afterlife, and a literal interpretation of the Bible. His autobiography, written for his children, pictures him as a man who started out with a theistic worldview.

In 1828, at the age of 19, Darwin entered Cambridge to become a clergyman. At that time in his life he believed in the “strict and literal truth of every word of the Bible.”<sup>6</sup> During his three-year stay at Cambridge he read William Paley’s *Evidences for Christianity* and *Natural Theology* with great delight and found Paley’s *teleological* argument—that the apparent design in nature implies a Designer—to be conclusive.

On December 27, 1831, Darwin set out on a sailing voyage that would last several years. While onboard a ship named the *Beagle*, Darwin was still quite orthodox: “I remember being heartily laughed at by several of the officers (though themselves orthodox) for quoting the Bible as an unanswerable authority on some point of morality.”<sup>7</sup>

After this excursion, Darwin spent the next few years (October 1836–January 1839) cogitating religion. He discovered what he perceived to be problems with the biblical record, and while he was at first unwilling to abandon his faith, disbelief eventually triumphed:

I can remember often and often inventing day-dreams of old letters between distinguished Romans and manuscripts being discovered at Pompeii or elsewhere which confirmed in the most striking manner all that was written in the Gospels. But I found it more and more difficult, with free scope given to my imagination, to invent evidence which would suffice to convince me. Thus disbelief crept over me at a very slow rate, but was at last complete.<sup>8</sup>

Darwin claimed that he remained a theist for many more years and that it wasn’t until shortly after the publication of *Origin* that his theism began to weaken, even though his belief in the Christian God was extinguished. As he stated, theism “was strong in my mind...when I wrote the *Origin* of species; and it is since that time that it has very gradually with many fluctuations become weaker.”<sup>9</sup>

Many scholars allude to passages in Darwin’s writings to support their claim that while Darwin’s theism began to weaken, he never completely abandoned his belief in God. In his chapter “Difficulties on Theory” he posed this question to those who compare the eye to a telescope: “Have we any right to assume that the Creator works by intelligent powers like those of man?” In the second and subsequent editions of *Origin*, Darwin closed with the following words: “There is grandeur in this view of life, with its several powers, having originally breathed by the Creator into a few forms or into one; and that...from so simple a beginning endless forms most beautiful and most wonderful have been, and are being evolved.”<sup>10</sup>

In 1879, a few years before Darwin’s death (1882), a German student wrote to ask Darwin about his religious beliefs. A member of his family replied, “Mr. Darwin...considers that the theory of evolution is quite compatible with the belief in a God.”<sup>11</sup>

Darwin’s rejection of Christianity and his continued belief in some form of deity is the picture most people have of him; and, I believe, this was the picture Darwin wanted to portray. A case can be made for a theistic Darwin; however, a careful and thorough study of his writings reveals that not only was the latter part of his life (following *Origin*) atheistic, but his disbelief can be traced back *much* earlier than Darwin had claimed.

## DARWIN'S DOUBT

Darwin’s autobiography discusses arguments for and against the existence of God. “The old argument,” says Darwin, “of design in nature, as given by Paley, fails, now that the law of natural selection has been discovered.”<sup>12</sup> Darwin also found the problem of suffering quite convincing as an argument against belief in God:

A being so powerful and so full of knowledge as a God who could create the universe, is to our finite minds omnipotent and omniscient, and it revolts our understanding to suppose his benevolence is not unbounded, for what advantage could there be in the sufferings of millions of the lower animals throughout almost endless time? This very old argument from the existence of suffering against the existence of an intelligent first cause seems to me a strong one; whereas, as

just remarked, the presence of much suffering agrees well with the view that all organic beings have been developed through variation and natural selection.<sup>13</sup>

Darwin argued that it was natural selection *alone* that could account for the facts. In Darwin's worldview, natural selection was incompatible with God and was meant to replace Him. He told Charles Lyell in 1859, "If I were convinced that I required such additions [new powers and attributes and forces] to the theory of natural selection, I would reject it as rubbish."<sup>14</sup> In his 1868 work he said that either God or natural selection is unnecessary, leaving his readers to decide between the two.<sup>15</sup> He had even referred to his theory as "the Devil's gospel"<sup>16</sup> and called natural selection "My deity."<sup>17</sup>

Toward the end of the religious section of his autobiography, Darwin summarized his position: "The mystery of the beginning of all things is insoluble to us; and I for one must be content to remain an Agnostic...Nothing is more remarkable than the spread of skepticism or rationalism during the latter half of my life."<sup>18</sup>

Despite Darwin's claim that skepticism ruled only the latter part of his life, evidence from a large number of recently published *private* notebooks, dating from 1836 to 1844, has revealed that Darwin expressed belief in atheism and materialism as early as May 1838, several months before he developed natural selection. The notebook entries of 1838 were, according to evolutionist Ernst Mayr, "thoroughly materialistic."<sup>19</sup> Darwin wrote, "Being hereditary it is difficult to imagine [thought] anything but structure of brain,"<sup>20</sup> and, "Love of the deity effect of organization, oh you materialist!...Why is thought being a secretion of brain, more wonderful than gravity a property of matter?"<sup>21</sup> By July of 1838, he wrote, "To avoid stating how far, I believe, in materialism, say only that emotions, instincts, degrees of talent, which are hereditary are so because brain of child resembles parent stock."<sup>22</sup> It has also been pointed out that the marginal comments of the physiological books Darwin was reading at that time show that he sided with the materialists.<sup>23</sup>

Did Darwin lie about his late rejection of theism? Some seem to think so. Others, such as Neal Gillespie, have tried to reconcile Darwin's theism with the notebook entries: "I would suggest that not only was Darwin's materialism compatible in his mind with theism, but that it represented no interest in a thoroughgoing atheistic philosophical or metaphysical materialism."<sup>24</sup>

The problem with Gillespie's explanation is that it fails to account for the entries that were so apparently atheistic, such as, "The above argument [for free will] would tend to make man a predestinarian of a new kind, for the man would tend to become an atheist."<sup>25</sup> In a letter to J. D. Hooker a few years later, Darwin wrote, "I am almost convinced...that species are not (it is like confessing a murder) immutable."<sup>26</sup>

Many scholars are coming to the conclusion that Darwin was in fact an atheist well before the publication of *Origin*.<sup>27</sup> Howard Gruber stated, "The material gives clear evidence for Darwin's realization during this period that his ideas were indeed materialistic, tending toward atheism, and therefore dangerous."<sup>28</sup> Stephen Jay Gould likewise said, "The notebooks prove that, Darwin was interested in philosophy and aware of its implications. He knew that the primary feature distinguishing his theory from all other evolutionary doctrines was its uncompromising philosophical materialism."<sup>29</sup>

## DARWIN'S AMBIGUITY

In addition to showing that he tended toward atheism, Darwin's writings also show, as we saw earlier, that he made recourse to "God-talk" on many occasions. Darwin's language on the subject is so ambiguous that it has long frustrated scholars:

The ambiguity of Darwin's "God-talk" is notorious. What is meant when he speaks of the "laws impressed on matter by the Creator" and yet ridicules special creation? What ground does he stand on when in the same letter he writes "I cannot persuade myself that a beneficent and omnipotent God would have designedly created the Ichneumonidae with the express intention of their feeding within the living bodies of Caterpillars..." and "I am inclined to look at everything as resulting from designed laws, with the details, whether good or bad, left to the working out of what may be called chance" and "all these laws have been expressly designed by an omniscient Creator, who foresaw every event and consequence."<sup>30</sup>

Darwin's writings have allowed both sides of this debate to find in them what they want to find; nonetheless, those who see Darwin as a theist (or deist) have more difficulty reconciling the atheistic passages with their view than those who see Darwin as an atheist have reconciling the theistic passages with their view. The Darwin-as-atheist school has offered at least two plausible explanations for Darwin's so-called theistic language.

Some believe that Darwin used God-talk because he didn't want to offend his friends, and especially didn't want to upset his wife, Emma, who was a very religious (Christian) woman. Emma married Charles in 1839, and shortly afterwards discovered his unbelief. She wrote to Charles revealing how dismayed she was, and expressed how unhappy she would be if Charles didn't belong to her for all eternity.<sup>31</sup>

Years later, Edward Aveling and Ludwig Buchner were afforded the opportunity to have lunch with Charles, Emma, and some close friends. In Emma's presence they spoke only of scientific matters. Later, in Darwin's private study, away from Emma, Darwin immediately initiated a conversation about religion. He told his guests how his wife was very orthodox on all points and he expressed "how he experienced no little pain in publishing his scientific discoveries from the fact that the statement of them in some cases was liable to hurt those who were very near and dear to him."<sup>32</sup>

Emma certainly influenced Darwin to temper his writings, but I believe there was a more significant reason behind Darwin's ambiguity. Darwin witnessed the "crucifixion" of many materialists in his day. Even Robert Chambers, who spoke repeatedly of God in his 1844 book on evolution, *Vestiges of the Natural History of Creation*, was severely criticized and labeled a materialist.<sup>33</sup> If Chambers couldn't achieve acceptance, how much more difficult would it have been for Darwin, whose theory was materialistic to the core? Darwin wasn't fond of controversy, which may account for *Origin's* late publication. When it finally was forced into publication many rejected its theory for religious reasons. It was always possible to reconcile God with his theory, however, and so I believe Darwin spiced up his God-talk to overcome this chief objection.

If this seems like mere speculation, consider what Darwin wrote to his good friend J. D. Hooker in 1863: "I have long regretted that I have truckled to public opinion, and used the Pentateuchal term of creation, by which I really meant 'appeared' by some wholly unknown process."<sup>34</sup>

David Kohn has recently pointed out that Darwin amended passages in his 1844 essay on which Emma had commented. He believes Emma became Darwin's model of the conventional Victorian reader. Emma's ability to alter the construction of Darwin's texts means one crucial thing for Kohn: "Not a word of the ambiguous God-talk in...*Origin* can be taken at face value."<sup>35</sup>

### DARWIN'S CONVERSION?

In the remaining (postautobiography) years of Darwin's life, he did not, as some claim, rediscover his Christian faith or even his belief in God. As mentioned earlier, Aveling and Buchner, two militant atheists, visited Darwin in 1881, one year before his death. Darwin at one point asked his guests, "Why do you call yourselves atheists, and say there is no God?"<sup>36</sup> Aveling explained that they did not say there was no God; rather, that because there was no evidence of deity, they were unable to believe in the idea of God and were therefore without God. Darwin agreed fully with their position, but chose a different word for it: "I am with you in thought, but I should prefer the word Agnostic to the word Atheist."<sup>37</sup>

The Duke of Argyll likewise had a conversation with Darwin a year before his death. The Duke pointed out some wonderful designs in nature and suggested they were the expression of Mind. Darwin looked hard at the Duke and said, "'Well, that often comes over me with overwhelming force; but at other times,' shaking his head, 'it seems to go away.'"<sup>38</sup>

Though these two meetings confirm that Darwin retained his unbelief, there was another meeting that supposedly took place with Lady Elizabeth Hope in the very last days of his life, in which he spoke of his conversion to Christianity. The story first appeared in the *Boston Watchman Examiner* in 1915:

It was on one of those glorious Autumn afternoons, that we sometimes enjoy in England, when I was asked to go in and sit with the well known professor, Charles Darwin. He was almost

bedridden for some months before he died...He was sitting up in bed...[holding] an open Bible, which he was always studying. "What are you now reading?" I asked. "Hebrews!" he answered—"still Hebrews. 'The Royal Book,' I call it. Isn't it grand?"...I made some allusion to the strong opinions expressed by many persons on the history of the Creation, its grandeur, and then their treatment of the earlier chapters of the book of Genesis. He seemed greatly distressed..."I was a young man of unformed ideas. I threw out queries, suggestions, wondering all the time over everything; and to my astonishment the ideas took like wildfire. People made a religion of them."...Then he paused...he suddenly said, "I have a summer house in the garden, which holds about thirty people...I want you very much to speak there...Will you speak to them?" "What shall I speak about?" I asked. "Christ Jesus!" he replied in a clear, emphatic voice, adding in a lower tone, "and his salvation. Is not that the best theme?"<sup>39</sup>

Only a very small band of Christians have ever believed and propagated this story. Evolutionists and the majority of creationists reject this story, and rightly so, for the evidence against Darwin's end-of-life conversion is convincing.

The story contains inconsistencies. For example, it claims that Darwin was almost bedridden for months; but, as one of Darwin's biographers noted, "He refused to be bedridden and worked whenever he had the strength."<sup>40</sup> There also appears to be many different versions of the same story.<sup>41</sup>

When rumors of Darwin's conversion first surfaced in 1887, the editor of the *Toronto Mail*, Charles Deduchson, wrote to Darwin's close friend Thomas Huxley to verify whether the story was true.<sup>42</sup> Huxley denied the allegation<sup>43</sup> and forwarded a copy of Deduchson's letter to Darwin's son, Francis, who likewise denied his father's conversion.<sup>44</sup>

Darwin's eldest daughter also was present at his death and has testified that her father never met Lady Hope and never recanted his "scientific views." She stated that the whole story was a fabrication that probably originated in the United States.<sup>45</sup>

## DARWIN'S FAITH

It appears that Darwin had a deep and abiding faith in atheistic materialism. The controversial question I now wish to address is, Did Darwin's atheistic and materialistic beliefs play any part in the development of his theory, or was Darwin led strictly by the facts? Darwin would have us believe that the facts alone led him to his theory: "My first notebook was opened in July 1837. I worked on true Baconian principles, and without any theory collected facts on a wholesale scale, more especially with respect to domesticated productions, by printed enquires, by conversation with skillful breeders and gardeners, and by extensive reading."<sup>46</sup>

Darwin's writings also demonstrate, however, that the facts played a very small part in the formulation of his theory. His early notebooks show that he entertained two other theories of evolution before finally arriving at his final theory. George Grinnell, in his study of Darwin's first theory of evolution, asks this question: "Were these three theories complementary or were they mutually exclusive? If they were complementary, then the implication is clearly in favor of the importance of the empirical data in shaping Darwin's thought, but if they were mutually exclusive, the implication is that Darwin approached the data with a prior world view which he attempted to superimpose on the data by means of various hypothetical models and mechanisms."<sup>47</sup>

Grinnell has come to believe that Darwin's three models were indeed mutually exclusive. Darwin rejected theory one (variation by isolation) because it contained too many anomalies. Darwin then turned his attention to theory two (variation by habit), but soon abandoned it for a third model (variation by domestic breeding), which turned out to be the most fruitful. "The extent to which he was willing to push one model," argues Grinnell, "and after its collapse, to entertain new models suggests that he was philosophically inclined to transmutation theories for reasons that transcend the empirical data with which he originally worked."<sup>48</sup>

That Darwin had a philosophical inclination toward evolutionary thinking is further supported by his response to evidence that contradicted his theory, including: (1) lack of transitional forms, (2) sudden

appearance of Cambrian fossils, (3) the problem of coordinated development, (4) persistent types (i.e., species that do not change), and (5) the existence of nonadaptive structures.<sup>49</sup> Rather than allowing contrary evidence to falsify the theory, as a good scientist would, Darwin offered a plethora of ad hoc hypotheses to save the theory from falsification.<sup>50</sup> Later, he even embraced theories that he once ridiculed, such as Lamarckism (the theory that evolution occurs through the inheritance of traits acquired through the use or disuse of body parts) and group selectionism, to solve special problems that natural selection could not solve.<sup>51</sup>

Further, when pressed on why there are persistent types, Darwin admitted that his theory must be based *entirely* on *general* considerations (i.e., the struggle for survival) and, when it gets right down to it, the theory requires faith: “When we descend to details, we can prove that no one species has changed...nor can we prove that the supposed changes are beneficial, which is the groundwork of the theory. Nor can we explain why some species have changed and others have not.”<sup>52</sup> Darwin’s theory was not scientific, as he claimed it to be. He had such a blind faith in materialism that he was willing to ignore or bend observations, and resort to ad hoc reasoning on an unprecedented level.

Why did Darwin lie about how his theory was formulated? The advice he gave to John Scott in 1863 may provide the answer: “I would suggest to you the advantage, at present, of being very sparing in introducing theory in your papers...*let theory guide your observations*, but till your reputation is well established be sparing in publishing theory. It makes persons doubt your observations” (emphasis in original).<sup>53</sup> Darwin recognized that people are more apt to accept a new theory if they believe it arose from the facts rather than from a preconceived idea, especially one that is inherently atheistic.

## DARWIN’S EVOLUTION

Though Charles Darwin was a theist in his early life, the evidence suggests his worldview began to change after his sea voyage. As early as 1837, Darwin became an evolutionist, and in the spring of the following year he embraced a materialistic and atheistic worldview that would go with him to his grave. In the fall of 1838 Darwin formulated his theory of natural selection.

Darwin claimed to have developed his theory of natural selection without any preconceived notions, but his writings indicate that his newfound materialistic faith was foundational in its development.<sup>54</sup> On finding a theory that “worked,” or at least worked better than the other theories he entertained, he then searched for the facts that supported his theory, ignoring and explaining away all contrary evidence.

Scholars such as George Grinnell, who have studied Darwin for years, are also coming to a similar conclusion: “I have done a great deal of work on Darwin and can say with some assurance that Darwin also did not derive his theory from nature but rather superimposed a certain philosophical world-view on nature and then spent 20 years trying to gather the facts to make it stick.”<sup>55</sup>

The popular understanding of Darwin’s beliefs and his practices as a scientist is contrary to the facts. Darwin’s theory was never meant to be compatible with a Creator. Its purpose was to remove God from the last sphere of life He had so dominated. It was an attempt to demolish Paley’s argument from design and give atheism its own “creation” story.

## NOTES

1. Charles Darwin, *On the Origin of Species by Means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life* (New York: Modern Library, 1993).
2. Garrett Hardin, *Nature and Man’s Fate* (New York: Mentor, 1959), 216.
3. In 1860, Sedgwick called Darwin’s *Origin* “a cold atheistical materialism.” David L. Hull, *Darwin and His Critics: The Reception of Darwin’s Theory of Evolution by the Scientific Community* (Cambridge, MA: Harvard University Press, 1973), 161.
4. Richard Dawkins, *The Blind Watchmaker* (New York and London: W. W. Norton, 1987), 6.
5. *Ibid.*
6. Charles Darwin, *The Autobiography of Charles Darwin: 1809–1882*, ed. Nora Barlow (New York: W. W. Norton, 1958), 57.
7. *Ibid.*, 85.
8. *Ibid.*, 86–87.
9. *Ibid.*, 93.
10. Darwin, *Origin*, 648–49.

11. Family Member, *The Life and Letters of Charles Darwin*, 2 vols., ed. Francis Darwin (New York: Basic Books, 1959), 1:277.
12. Darwin, *Autobiography*, 87.
13. *Ibid.*, 90.
14. Darwin, *Life and Letters*, 2:6.
15. Charles Darwin, *Variations of Domesticated Animals and Plants*, vol. 2 (New York: D. Appleton and Company, 1896), 428.
16. Charles Darwin, *The Correspondence of Charles Darwin*, vol. 8, 1860, ed. Frederick Burkhardt (Cambridge: Cambridge University Press, 1993), 316.
17. Darwin, *Life and Letters*, 2:165.
18. Darwin, *Autobiography*, 94–95. Writers such as Maurice Mandelbaum have rightly called Darwin’s agnosticism “an undogmatic form of atheism.” “Darwin’s Religious Views,” *Journal of the History of Ideas* 19 (June 1958): 376.
19. Ernst Mayr, *One Long Argument: Charles Darwin and the Genesis of Modern Evolutionary Thought* (Cambridge, MA: Harvard University Press, 1993), 15.
20. Charles Darwin, *Charles Darwin’s Notebooks, 1836–1844: Geology, Transmutation of Species, Metaphysical Enquiries*, ed. Paul H. Barrett et al. (Ithaca, NY: Cornell University Press, 1987), C166, 291.
21. *Ibid.*
22. *Ibid.*, M57, 532–33.
23. David Kohn, “Darwin’s Ambiguity: The Secularization of Biological Meaning,” *British Journal for the History of Science* 22 (1989): 224.
24. Neal C. Gillespie, *Charles Darwin and the Problem of Creation* (Chicago: University of Chicago Press, 1979), 139.
25. Charles Darwin, August 1838, in *Notebooks*, M74, 536.
26. Charles Darwin, *More Letters of Charles Darwin*, 2 vols., ed. Francis Darwin and A. C. Seward (London: John Murray, 1903), 1:40–41; see also *Life and Letters*, 1:384.
27. Silvan Schweber, “The Origin of the Origin Revisited,” *Journal of the History of Biology* 10, 2 (1977): 233–34; Ernst Mayr, “Darwin and Natural Selection,” *American Naturalist* (May–June 1977): 323; Michael Ghiselin, “The Individual in the Darwinian Revolution,” *New Literary History* 3, 1 (1971): 122.
28. Howard Gruber, *Darwin on Man* (New York: E. P. Dutton and Company, 1974), 14.
29. Stephen Jay Gould, *Ever Since Darwin* (New York: W. W. Norton, 1979), 24.
30. Kohn, 215–16.
31. *Autobiography*, 237.
32. Edward Aveling, “Charles Darwin and Karl Marx,” *New Century Review* 1 (1897): 322.
33. For example, one critic states that Chambers “is at least consistent in his own materialism... We have nothing but bare assertion; and we defy him... to prove this single point.” Adam Sedgwick, review of *Vestiges of the Natural History of Creation*, in *Edinburgh Review* 82 (July 1845): 12, 31. Darwin read Sedgwick’s review with “fear and trembling.” *Life and Letters*, 1:312.
34. Darwin, *Life and Letters*, 2:202–3.
35. Kohn, 226.
36. Aveling, 323.
37. Charles Darwin, quoted in Edward Aveling, “A Visit to Charles Darwin,” *National Reformer* 40, 18 (October 29, 1882): 292.
38. Charles Darwin, quoted in Duke of Argyll, “What Is Science?” *Good Words* 26 (1885): 244.
39. Cited in Edward Caudill, *Darwinian Myths* (Knoxville, TN: University of Tennessee Press, 1997), 47.
40. William Irvine, *Apes, Angels, and Victorians* (New York: Time, 1955), 277.
41. Pat Sloan, “The Myth of Darwin’s Conversion,” *Humanist* (British) 75 (March 1960): 70–72.
42. Warren Dawson, *The Huxley Papers* (London: Imperial College of Science and Technology, 1946), 34, letter 13.136.
43. *Ibid.*, letter 13.138.
44. *Ibid.*, 33, letter 13.67.
45. See “Charles Darwin’s Death-Bed,” *The Christian*, February 23, 1922, 12.
46. Darwin, *Autobiography*, 119; *Life and Letters*, 2:371, 412.
47. George Grinnell, “The Rise and Fall of Darwin’s First Theory of Transmutation,” *Journal of the History of Biology* 7, 2 (Fall 1974): 259.
48. *Ibid.*, 273.
49. Hull’s book *Darwin and His Critics* (see n. 3) is a compilation of many critiques of Darwin from his contemporaries. Also, an early work that contains these objections and more is George Mivart, *The Genesis of Species* (New York: D. Appleton and Company, 1871).
50. For example, imperfect fossil record, functional shift (today it is called *preadaptation*), less severe competition, correlations of growth, and sexual selection (i.e., female choice).
51. Loren Eiseley, *Darwin’s Century* (New York: Doubleday, 1961), 209–11; Michael Ruse, “Charles Darwin and Group Selectionism,” *Annals of Science* 37 (1980): 627.
52. Darwin, *Life and Letters*, 2:210.
53. Darwin, *More Letters*, 2:323.
54. Darwin was also influenced by Comte’s positivism, Lyell’s uniformitarianism, and Malthus’s struggle for survival.
55. George Grinnell, “Reexamination of the Foundations,” *Pensee* 2, 2 (May 1972): 44.