Chapter 2
Evolution Versus Creation: A Sibling Rivalry?

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Abstract In this paper, I argue that evolutionary thinking started as a secular response to the Christianity of the eighteenth century. While I agree that Charles Darwin's theory of evolution was in essence scientific, I argue that Darwin's supporters often wanted to continue to treat evolutionary thinking as a secular response to religious claims. This continues to the present, and I suggest that evolutionists should be aware of this fact and temper their thinking and behavior accordingly.

Q: Dr. Ruse, having examined the creationist literature at great length, do you have a professional opinion about whether creation science measures up to the standards and characteristics of science that you have just been describing?
A: Yes, I do. In my opinion, creation science does not have those attributes that distinguish science from other endeavours.
Q: Would you please explain why you think it does not.
A: Most importantly, creation science necessarily looks to the supernatural acts of a Creator. According to creation-science theory, the Creator has intervened in supernatural ways using supernatural forces.
Q: Do you think that creation science is testable?
A: Creation science is neither testable nor tentative. Indeed, an attribute of creation science that distinguishes it quite clearly from science is that it is absolutely certain about all of the answers. And considering the magnitude of the questions it addresses – the origins of man, life, the earth, and the universe – that certainty is all the more revealing. Whatever the contrary evidence, creation science never accepts that its theory is falsified. This is just the opposite of tentativeness and makes a mockery of testing.
Q: Do you find that creation science measures up to the methodological considerations of science?
A: Creation science is woefully lacking in this regard. Most regrettably, I have found innumerable instances of outright dishonesty, deception, and distortion used to advance creation-science arguments.

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Q: Dr. Ruse, do you have an opinion to a reasonable degree of professional certainty about whether creation science is science?
A: Yes.
Q: What is your opinion?
A: In my opinion creation science is not science.
Q: What do you think it is?
A: As someone also trained in the philosophy of religion, in my opinion creation science is religion (Ruse 1988, 304–306).

My moment of triumph! The time was December 1981 and the place was Little Rock, Arkansas. The occasion was a court trial, brought on by the American Civil Liberties Union, that organization dedicated to the defense of the US Constitution. It was attacking a new law in the state that insisted that children be taught, alongside evolution, something called (by its defenders) Creation Science and better known to the rest of us as Genesis taken absolutely literally. I was an expert witness for the ACLU, and thanks to my testimony and that of others (notably including the late Stephen Jay Gould), we won a terrific victory. Creation Science was ruled to be religion and hence not admissible to publicly funded schools, and that was the end of that. For once in his life, a philosopher had shown that he was not entirely useless.

That was 30 years ago, and time has shown that we evolutionists celebrated a little too quickly. Crude Biblical literalism may have been vanquished, but an evangelical-Christian-inspired approach to nature is still alive and well – these days often under the label of Intelligent Design – and evolutionists continue to have to fight for the theory that they love so deeply. Anyone who says confidently that the schoolchildren of the United States will never learn about Noah's Flood in biology classes in the twenty-first century sees ahead more clearly and confidently than I. The usual feeling of evolutionists – certainly the feeling that I had for many years before, during, and after Arkansas – is that it is a simple matter of right and wrong, black and white. The Christians are wrong and the evolutionists are right. The world was not made in 6 days, 6,000 years ago. Adam and Eve were not made miraculously. There was no universal flood. Rather, everything living is the end result of a long, slow, natural process of development, and (although there is some debate about its extent) the chief cause is that identified by Charles Darwin in his *Origin of Species*: natural selection brought on by a struggle for existence.

I still think that this is basically the truth, and please note that nothing I am about to say in any way should be taken as a weakening of my convictions in this respect. I am with Darwin all of the way. I agree with the philosopher Dan Dennett (1995), who has said that natural selection is the great idea of all time. But I do think now that there is more to the story than good and bad, Heaven and Hell. I believe – and in this paper I shall try to justify this belief – that there is a good reason why, over and above the simple facts of the case, the evangelicals are tense about Darwinism (using the term generically for evolutionism). As an evolutionist, I look to the past for solutions and understanding, and I believe that by looking back at the history of evolution we see that it has always been more than just science – and continues to be more to this day – and that this excess is of a kind directly to challenge those with religious convictions. In short, I argue that

evolution has itself (and still does) function as a challenge to conventional religion – it is, if you will, a secular religion – and there is no wonder that the Creationists and fellow travelers get so het up. I am not the first to say this. The Creationists have been saying it for some time. But I think I am the first – or one of the first – to say it from the evolutionary side. I am not a traitor – at least, I do not think of myself in this way – even though I am saying naught for our comfort. Without wanting to sound like a pretentious prig, my hope indeed is to show to us evolutionists what we are doing. I do not expect or really want people to change their minds about their beliefs, but I do want to show when it is appropriate to make claims of one kind and when it is appropriate to make claims of another kind. And when perhaps we should keep our mouths shut, although there are no doubt those who think that I should be the first to take my own advice.

2.1 Before The Origin

Evolution is an idea with its roots in the eighteenth century. This was the time when the ideology of progress – the belief that humans through their own unaided efforts can change and improve their lots – became dominant, and there were several who took the cultural idea of progress and read it into the rocks, thereby making for an evolutionary or transmutationary view of life's history. Usually, they then promptly took their evolutionism and argued in a good circular fashion that this justified their beliefs in progress (Darwin 1803)! This continued right through to the middle of the nineteenth century. The poet Alfred Tennyson shows this in his famous and much-loved poem *In Memoriam*. This poem was begun in the 1830s but not completed until about 1850. It is a testament to the memory of a young friend of Tennyson, Arthur Henry Hallam, whose life was cut short. Tennyson writes at first in the poem about his desolation at Hallam's death and existence's apparent meaninglessness, something which he found reflected in the uniformitarian geology of Charles Lyell. Lyell had argued that nature is going nowhere, just simply bound by unbroken stern laws, and that there is no end in prospect, nor any progress in view. Life comes and life goes without meaning as expressed in the following famous passage:

> Are God and Nature then at strife,
> That Nature lends such evil dreams?
> So careful of the type she seems,
> So careless of the single life;
> .....
> So careful of the type? but no.
> From scarped cliff and quarried stone
> She cries, "A thousand types are gone:
> I care for nothing, all shall go. "

Given Nature "red in tooth and claw" – this is the source of this famous phrase – nothing seems to make any sense. Not only are individuals pointless mortals, but so also are groups. We are born, we live, and then we die – usually painfully. Nothing

makes sense or has meaning. There are just endless Lyellian cycles. Then towards the end of the 1840s Tennyson read Chambers, or at least he read a very detailed review of Chambers's *Vestiges*. Chambers (1844) argued for an organic evolution that was unambiguously progressionist, that is to say, moving up from simple forms to humans, and then perhaps beyond. Inspired by this, Tennyson picked up pen and finished his poem. He argued in the final lines that perhaps there is meaning after all, despite a Lyellian uniformitarianism: that life is progressing upwards, and that perhaps will go on beyond the human form that we have at present. Could it not be that Hallam represented some anticipation of the more-developed life to come, cut short as it were in its prime? There is therefore hope for us all and a meaning for the life of Hallam.

> A soul shall strike from out the vast
> And strike his being into bounds,
> And moved thro' life of lower phase,
> Result in man, be born and think,
> And act and love, a closer link
> Betwixt us and the crowning race
> .....
> Whereof the man, that with me trod
> This planet, was a noble type
> Appearing ere the times were ripe,
> That friend of mine who lives in God.

2.2 Charles Darwin

So much for evolution before 1859, the year in which *On the Origin of Species* was published. What did Darwin do and how did he alter things? Start with what he did. He set out to give a new theory of evolution, one that could indeed stand muster against a proper empirical approach to science. He made the fact of evolution secure, and he proposed the mechanism – natural selection – that is generally considered by scientists today to be the key factor behind the development of organisms, i.e., a development by a slow natural process from a few simple forms, and perhaps indeed ultimately from inorganic substances (although, sagely, Darwin said nothing on this latter topic). In *The Origin*, after first stressing the analogy between the world of the breeder and the world of nature, and after showing how much variation exists between organisms in the wild, Darwin was then ready for the key inferences. First, an argument to the struggle for existence and, following on this, an argument to the mechanism of natural selection.

> Let it be borne in mind in what an endless number of strange peculiarities our domestic productions, and, in a lesser degree, those under nature, vary; and how strong the hereditary tendency is. Under domestication, it may be truly said that the whole organization becomes in some degree plastic. Let it be borne in mind how infinitely complex and close-fitting are the mutual relations of all organic beings to each other and to their physical conditions of life. Can it, then, be thought improbable, seeing that variations useful to man have

> undoubtedly occurred, that other variations useful in some way to each being in the great and complex battle of life, should sometimes occur in the course of thousands of generations? If such do occur, can we doubt (remembering that many more individuals are born than can possibly survive) that individuals having any advantage, however slight, over others, would have the best chance of surviving and of procreating their kind? On the other hand we may feel sure that any variation in the least degree injurious would be rigidly destroyed. This preservation of favourable variations and the rejection of injurious variations, I call Natural Selection (Darwin 1859, 80–81).

With the main mechanisms of change thus presented, Darwin introduced the famous metaphor of a tree. "The affinities of all the beings of the same class have sometimes been represented by a great tree. I believe this simile largely speaks the truth." The leaves and twigs at the top represent the species extant today. Then as we go down the branches, we have the great evolutionary paths of yesterday. All the way down we go until we reach the very first shared origins of life. "As buds give rise by growth to fresh buds, and these, if vigorous, branch out and overtop on all sides many a feebler branch, so by generation I believe it has been with the great Tree of Life, which fills with its dead and broken branches the crust of the earth, and covers the surface with its ever branching and beautiful ramifications" (Darwin 1859, 129–130).

Then from this, Darwin turned to a general survey of the biological world, offering what the philosopher William Whewell (1840) had dubbed a "consilience of inductions." Each area was explained by evolution through natural selection, and in turn each area contributed to the support of the mechanism of evolution through natural selection. Geographical distribution (biogeography) was a triumph, as Darwin explained just why it is that one finds the various patterns of animal and plant life around the globe. Why, for instance, does one have the strange sorts of distributions and patterns that are exhibited by the Galapagos Archipelago and other island groups? It is simply that the founders of these isolated island denizens came by chance from the mainlands, and once established started to evolve and diversify under the new selective pressures to which they were now subject. Embryology likewise was a particular point of pride for Darwin. Why is it that the embryos of some different species are very similar – man and the dog for instance – whereas the adults are very different? Darwin argued that this follows from the fact that in the womb the selective forces on the two embryos would be very similar – they would not therefore be torn apart – whereas the selective forces on the two adults would be very different – they would be torn apart. Here, as always through his discussions of evolution, Darwin turned to the analogy with the world of the breeders in order to clarify and support the point at hand. "Fanciers select their horses, dogs, and pigeons, for breeding, when they are nearly grown up: they are indifferent whether the desired qualities and structures have been acquired earlier or later in life, if the full-grown animal possesses them" (Darwin 1859, 446). And finally, all of this led to that famous passage at the end of *The Origin*: "There is a 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" (Darwin 1859, 490).

So much for the theory. Now, in the light of the history presented thus far, what was Darwin hoping to do? Two things we can say immediately. He was not repudiating progress. It may have had a somewhat subdued role, but as the quotation just given at the end of the last paragraph shows unambiguously, biological progress was there and believed in. So I am certainly not saying that Darwin broke absolutely with his past. Indeed, in a way I am hinting that if someone were a Christian perhaps, for the first time, here was an evolutionary theory that might be molded and adapted for use without giving up one's faith. But, in the context of this present discussion, I think more important than the continuities was Darwin's determination to make of his theory something with a different status from those of his predecessors. Darwin did not want to produce a secular religion. He wanted to produce a functioning, empirical science. He wanted something, to use the language of Thomas Kuhn (1962), that could work as a "paradigm," making possible normal science. The kind of normal science that in fact he himself was to do soon after *The Origin*, when he wrote a little book on orchids (Darwin 1862) and that others were to do, like Henry Walter Bates (1862, 511–513) when he used natural selection to produce an explanation of butterfly mimicry. Progress was there, but it was downplayed. References may have been made to the Creator, but He was given no work to do, and could have been dropped without loss of content. Evolution through natural selection was certainly going to contradict Genesis taken literally, but to think that Darwin was offering a "religion without revelation" (to borrow a title from a book of the twentieth century) would be quite to misunderstand his intent (see Huxley 1927).

2.3 The Darwinian Evangelist

So, what happened? I argue that Darwinism got hijacked, and turned to other purposes (Ruse 1996, 1999a, 1999b, 2000). And the chief hijacker was none other than he who is celebrated as "Darwin's Bulldog," the nineteenth-century morphologist and paleontologist Thomas Henry Huxley. Unlike Darwin – a rich man, sick for most of his adult life, able to live as a semi-recluse – Huxley was a man who was making his own way, as a university professor and then as a college dean. He, with a number of others (mainly men but with some women like Florence Nightingale), were striving hard to change the course of British life, away from the near-feudalism of the rural eighteenth century and towards the modern, urban industrialism of the twentieth century. They were reforming the civil service, the military, the medical profession, and more – including teaching at school and university. Huxley was in the thick of creating a professional science – a professional science where one could succeed on merit and make a living – and Huxley realized full well that to achieve his aims he had to find reasons to employ the young scientists he was producing. Physiology he sold to the medical profession, arguing (with success) that the time had come to stop killing people and to start curing. Morphology he sold to the teaching profession, which was at a crucial point for only

now was education starting to become the birthright of all and not under the sway of organized religion. For evolution, alas, Huxley could see no immediate cash value. It cured no pains in the belly, and it was too daring for the junior classroom. But Huxley – a dedicated evolutionist, albeit somewhat indifferent to natural selection – could nevertheless see a role for evolution. It would be the ideology – the secular religion – of the reformers, being something to put against the ideology – the spiritual religion – allied with those who resisted change. It would be the system giving answers to origins and explaining the status of humankind to replace the outdated system of the conservatives and reactionaries, who worshiped each Sunday in the local Anglican parish church. Evolution versus Christianity.

Progress, naturally, was to be the backbone of the system. But more was needed. A good religion has a moral system, a set of ethical prescriptions – Thou shalt not kill; Love your neighbour as yourself; and so forth. Charles Darwin was not really into this sort of thing, but there was another English evolutionist ready and very willing to step into the breach. Herbert Spencer's evolutionism starts (continues and finishes) with progress. For him, progress was not so much an empirical finding but a metaphysical presupposition of his view of history. It ran through everything, from the most primitive forms of culture to the evolution of our own species.

> Now, we propose in the first place to show, that this law of organic progress is the law of all progress. Whether it be in the development of the Earth, in the development of Life upon its surface, in the development of Society, of Government, of Manufactures, of Commerce, of Language, Literature, Science, Art, this same evolution of the simple into the complex, through a process of continuous differentiation, holds throughout. From the earliest traceable cosmical changes down to the latest results of civilization, we shall find that the transformation of the homogeneous into the heterogeneous, is that in which Progress essentially consists (Spencer 1857, 446–447).

Morality fit nicely into all of this. It is our obligation to preserve and to promote progress. Here there is a place for the struggle and selection. Even in 1851 some years before *The Origin* was published, Spencer speculated on selective effects showing themselves in the different natures and behaviours of the Irish and the Scots. He concluded that struggle and selection in society translates into extreme laissez-faire socioeconomics: the state should stay out of the way of people pursuing their own self-interests and should not at all attempt to regulate practices or redress imbalances or unfairnesses. Libertarian license therefore is not only the way that things are, but the way that they should be. In fact, Spencer was far from convinced that mid-Victorian Britain was a laissez-faire society, but this is what he hoped fervently that it would become.

> . . . we must call those spurious philanthropists, who, to prevent present misery, would entail greater misery upon future generations. All defenders of a poor law must, however, be classed amongst such. That rigorous necessity which, when allowed to act on them, becomes so sharp a spur to the lazy, and so strong a bridle to the random, these pauper's friends would repeal, because of the wailings it here and there produces. Blind to the fact, that under the natural order of things society is constantly excreting its unhealthy, imbecile, slow, vacillating, faithless members, these unthinking, though well-meaning, men advocate

> an interference which not only stops the purifying process, but even increases the vitiation — absolutely encourages the multiplication of the reckless and incompetent by offering them an unfailing provision, and *dis*courages the multiplication of the competent and provident by heightening the prospective difficulty of maintaining a family (Spencer 1851, 323–324).

The point I make, therefore, is that Charles Darwin was both a success and a failure. He was a success inasmuch (and it is a very big "inasmuch") as he turned people to evolution. Before him, it had been a pseudo-scientific idea, on a par with astrology or phrenology. (Interestingly, Chambers had started to write a book on phrenology – the science of brain bumps – and changed half-way through to writing a book on evolution.) After Darwin, evolution was common sense. He was a failure inasmuch (and you judge how big an "inasmuch" you think this to be) he did not turn evolution into a functioning, professional science, with natural selection at its heart. Evolution was a raging success, but more in a bastardized Spencerian version, functioning less as a science and more as a secular religion (Bannister 1979). That was what the reformers like Huxley wanted and that was what the reformers like Huxley got. When Jesus died on the cross, there was no religion of Christianity. That was for St Paul to create, and people have been arguing ever since about the relationship between the life and teachings of Jesus and the religion that St Paul left behind. When Darwin wrote *The Origin*, there was no science of Darwinism. That was for Thomas Henry Huxley to create, and I argue that the relationship between the teachings of Darwin and the religion of Huxley was about as iffy as that between Jesus and Paul.

2.4 The Twenty-first Century

I will skip much subsequent history, coming down to the present, summing up, and drawing a conclusion. I argue strongly and strenuously that there is today a mature evolutionary biology – Darwin-based, empirical, predictive, explanatory. It has felt and benefitted from the full blast of the molecular revolution in biology, and it looks forward into this new century with great accomplishments, with powerful tools, and with an anticipation of solving major problems old and new. I mention simply as illustration the incredible advances over the past two decades in the understanding of development and of how this is now being integrated into the evolutionary picture (so-called "evo-devo"). This evolutionary biology is not, by any stretch of the imagination, a secular religion, and those who quote me as saying that it is (or pretend that I have not mentioned and stressed its existence and importance) do me and evolutionary biology a grave disfavour. But, given our history, you would expect more to the story, and indeed there is. I would argue also that – in the tradition of Thomas Henry Huxley – there is another side that continues unabated today. And this side does use evolution as a secular religion.

And do not underestimate this side. Many who play this game are great evolutionary biologists in their own right. One thinks here of the distinguished Harvard entomologist and sociobiologist Edward Osborne Wilson, who has made major advances in our understanding of social behaviour. He nevertheless is explicit in wanting to make more of his science than mere science. Consider for instance the use he makes of evolution in his Pulitzer Prize-winning *On Human Nature*:

> But make no mistake about the power of scientific materialism. It presents the human mind with an alternative mythology that until now has always, point for point in zones of conflict, defeated traditional religion. Its narrative form is the epic: the evolution of the universe from the big bang of fifteen billion years ago through the origin of the elements and celestial bodies to the beginnings of life on earth. The evolutionary epic is mythology in the sense that the laws it adduces here and now are believed but can never be definitively proved to form a cause-and-effect continuum from physics to the social sciences, from this world to all other worlds in the visible universe, and backward through time to the beginning of the universe. Every part of existence is considered to be obedient to physical laws requiring no external control. The scientist's devotion to parsimony in explanation excludes the divine spirit and other extraneous agents. Most importantly, we have come to the crucial stage in the history of biology when religion itself is subject to the explanations of the natural sciences. As I have tried to show, sociobiology can account for the very origin of mythology by the principle of natural selection acting on the genetically evolving material structure of the human brain.
>
> If this interpretation is correct, the final decisive edge enjoyed by scientific naturalism will come from its capacity to explain traditional religion, its chief competitor, as a wholly material phenomenon. Theology is not likely to survive as an independent intellectual discipline (Wilson 1978, 192).

Like Spencer (a thinker whom Wilson admires greatly), over the years Wilson has offered all sorts of moral prescriptions, most particularly about the need to preserve biodiversity and to cherish the plants of the world, especially those vanishing from the Brazilian rainforests (where Wilson has spent much of his professional life). And it will not surprise the reader to find that progress is the force and reason behind everything: "the overall average across the history of life has moved from the simple and few to the more complex and numerous. During the past billion years, animals as a whole evolved upward in body size, feeding and defensive techniques, brain and behavioral complexity, social organization, and precision of environmental control – in each case farther from the nonliving state than their simpler antecedents did." (Wilson 1992, 187) Hence: "Progress, then, is a property of the evolution of life as a whole by almost any conceivable intuitive standard, including the acquisition of goals and intentions in the behavior of animals" (*Ibid.*). For Wilson, as for Spencer, progress confers value, and hence it is our obligation to promote (or at least not hinder) the evolutionary process.

What about my own position? It is not really relevant (although see Ruse 2001, 2003)! My intent here is simply to draw your attention to the fact that the tradition of making evolution into something more than a science – into a secular religion, to be blunt – is far from dead. It thrives on both sides of the Atlantic (and I am sure elsewhere, even – or perhaps especially – in post-Communist Russia). Anyone who thinks Wilson is not offering an evolution-based, Christianity alternative should read the pertinent passages again. And with my conclusion drawn, I will now allow myself

a prescription. I do not want to stop Wilson and his fellows from doing what they do. Apart from anything else, as a historian and philosopher of science, I would be putting myself out of a job! And, too soon, people would be suggesting that I should not do what I do. But I do want to say to my fellow evolutionists, to my fellow Darwinians: Be aware of what you are doing, and do not pretend that you are doing straight science when you are not. Most particularly – and here I speak particularly to those of us who live and work in America – do not mix up your science and religion when you are teaching. It is illegal and unwise. The Creationists are out there watching what you are doing, and if you are teaching religion (secular or otherwise) under the guise of science, they will soon find out. And then they will have a lever, either to teach Creationism in the schools or to ban evolution from the schools. Either of these disjuncts would be a tragedy.

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