A DARWINIAN PILGRIM'S EARLY PROGRESS

Michael Ruse

Lucyle T. Werkmeister Professor and Director of the *History and Philosophy of Science* Program

Department of Philosophy

Florida State University, USA

Email: mruse@fsu.edu

ABSTRACT

[…] Part one of three in an autobiographical series which…

IN THE BEGINNING

The child is the father of the man. I was born in 1940 and raised very intensely as a Christian, as a member of that Protestant sect known as Quakers – the Religious Society of Friends. They are notable not only for having no priests or dogmas or set services – they sit in silence unless moved to speak – but also for being fervently pacifist. Three things stand out from this childhood. First, taking very seriously the Sermon on the Mount and the obligation to serve others. Second, an almost mystical approach to the Godhead – God is the Unknown and Unknowable, except in glimpses. Third, the need – the obligation – to think for oneself. These have guided me all my life – together with the Parable of the Talents, the belief that, to whom much is given, from whom much is expected.

Around the age of twenty my faith faded never to return. I am not sure why exactly. I still have great affection for the religion of my childhood – I am about as far from a New Atheist Christian-hater as it is possible to imagine – but I am a non-believer. Thinking for myself was important here – I don't mean that I was left without help and guidance, but ultimately it was for me to decide. The mystical side to Quakerism also kicked in. I am atheistic about Christianity (Ruse 2015). Although I am still guided by the moral teaching, I don't believe that Jesus was the son of God or that he rose from the dead or any of that stuff. I certainly don't believe that his death on the Cross redeemed us from our sinful natures, the result of Adam eating that apple. But overall, I am agnostic. As the geneticist J. B. S. Haldane used to say: "My own suspicion is that the universe is not only queerer than we suppose, but queerer than we *can* suppose" (Haldane 1927: 286). This is not smuggling in God by the back door. Just awe at the mystery and meaning of existence.

"The LORD gave, and the LORD hath taken away; blessed be the name of the LORD." As the Quaker influence, with its stress on each and every one of us making decisions for ourselves, eased my path from Christianity, so it drew me to philosophy, the great privilege of my life. I have been a university professor since I was 25. I am now 78 and in the 54th year of teaching. My real joys are teaching first-year undergraduates and working with my graduate students. The Quaker urge to serve others was a factor, but truly I teach because I love it so. Plato told us that the only truly happy people are those serving others. If I ever were to have a tombstone, it is that that I would want engraved upon it.

The philosophy of biology

If you think of the life of a professor as being supported by three legs, these are teaching, research, and administration. In recent years, directing a program in the history and philosophy of science, I have been rather drawn into administration. If I say that I do it because I am a philosopher king, serving my community, that is a lot more pompous and self-embellishing than I intend. It is true, however, that it takes a very tertiary place in my universe. Teaching first, then research. (For me, there isn't much difference.) I was always interested in science and so it was natural that I became a philosopher of science. Where I (and one or two others, most notably David Hull) broke the mold back in the 1960s was that I became very interested in biology, particularly the evolutionary theory that is the legacy of Charles Darwin. Trained as an analytic philosopher, with the emphases on language and logic and fine detail in arguments, I worked intensively on the modern version of Darwin's theory, evolution through natural selection brought on by the struggle for existence, made possible by the units of inheritance, first Mendelian genes and then more recently DNA, the double helix.

My aim, and that of the few who trod the same path, was to show that Darwinian theory, past and certainly present, is not as was often claimed just a narrative science or some such thing, spinning plausible stories but really without the rigor or the testing of "real science," aka physics and chemistry. The key was to show that today it is genetics that unlocked the door to understanding, in the sense that it is this that comes first logically in modern evolutionary biology, with natural selection – its importance entirely undiminished – then introduced as a disruptive factor. Darwin, who had little knowledge of genetics, went a different (although entirely understandable) way (Darwin 1859; Ruse 1975). For him, it was important first to get natural selection on the table. Hence, having first talked of artificial selection – the method that breeders use to improve their livestock and plants, sometimes commercially as with woolier sheep and sometimes for entertainment as with more tuneful song birds – he made the case for natural selection.

Actually, Darwin had a two-part argument. Generalizing from an argument by Thomas Robert Malthus, which he in turn got from Benjamin Franklin, he argued that population pressures lead to struggles for life and reproduction. "A struggle for existence inevitably follows from the high rate at which all organic beings tend to increase." Continuing that as more

individuals are produced than can possibly survive, there must in every case be a struggle for existence, either one individual with another of the same species, or with the individuals of distinct species, or with the physical conditions of life" (Darwin 1859: 63-64). Second, Darwin argued to his major mechanism of natural selection, asking if it "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?" Concluding that: "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." He added: "This preservation of favorable variations and the rejection of injurious variations, I call Natural Selection" (80-81).

Today, genetics comes first logically (Maynard Smith 1958). I strove to show that, as in the physical sciences, we have the appeal to empirical laws – for instance the Hardy-Weinberg law that acts as a kind of background equilibrium law in much the way that Newton's first law of motion acts as a background equilibrium law in physics. If there are no impinging external forces, then things stay the same. If the ratio of the genes (alleles) at a particular place on the chromosome (locus) is initially p:q, with (given that chromosomes come in pairs) two alleles at that locus in every organism, then in future generations this ratio will persist unchanged. Moreover, after the first generation, the distribution will remain the same. Labeling the alleles, A and a, then we have: p^2AA + 2pqAa + q^2aa = 1, where AA and aa are the homozygotes (same genes at opposite loci) and Aa are the heterozygotes (different genes at opposite loci). Selection, with other factors like new variations (mutations), then shows how and why things do not stay the same. I strove to show that, as in the physical sciences, we have deductive arguments and that there is appeal to theoretical entities (the inferred genes), and that meaning is given by making predictions and checking them against the real world. Popper's notion of falsifiability was and still is controversial, but biology stood the test as much as did the physical sciences (Ruse 1973). In particular, I defended natural selection – the survival of the fittest – from the oft-made charge that it is but a tautology – those that survive are those that survive. I showed that often in fact the fittest do not survive. It is all a matter of probabilities and sometimes the dice go other ways.

One thing of which I was (and still am) particularly proud was the way that I showed that Darwinian theory – that of the *Origin* and that of today – is what the nineteenth-century historian and philosopher of science and mentor of Darwin, William Whewell (1840), called "consilient." The power of the theory comes from the way in which, given the central mechanism, it can then be applied throughout the living world – past and present – showing how it offers solutions to tricky questions and is in turn confirmed by the answers. For instance, why are the animals of the Galápagos Archipelago, nor far from the coast of South America, like the denizens of South America and not like those of Africa? Why conversely are the inhabitants of the Canary Islands

like those of Africa and not like those of South America? Because they started on their respective continental homelands and then moved to the isolated islands and went on evolving through selection, still reflecting their origins. Similar sorts of explanations can be found in paleontology, systematics, anatomy, embryology, and more. Nicely showing just how (with reason) Darwin thought of his theory as measuring up to the standards of physics, to a later (sixth) edition of the *Origin*, he added:

> It can hardly be supposed that a false theory would explain, in so satisfactory a manner as does the theory of natural selection, the several large classes of facts above specified. It has recently been objected that this is an unsafe method of arguing; but it is a method used in judging of the common events of life, and has often been used by the greatest natural philosophers. The undulatory theory of light has thus been arrived at; and the belief in the revolution of the earth on its own axis was until lately supported by hardly any direct evidence. (Darwin 1872: 421)

TELEOLOGY

One thing puzzled me even back then. It has continued to puzzle me right through my career, to the extent that last year I published the second of two full-length books on the topic (Ruse 2003, 2017). In physics, since the Scientific Revolution of the sixteenth and seventeenth centuries, teleology – Aristotelian final causes – have been *verboten*. You can ask why the moon circles the earth, rather than flying off into space. You cannot ask about the function or purpose of the moon. At least, if you say that the moon exists to light the way home for drunken philosophers, you are joking – even if, as with the Lunar Society in the eighteenth century, it does in fact serve this purpose (Unger 2002). It is not a claim that can be made in physics. Regular talk, *efficient causation*, refers to things past – the noise came from the hammer banging on the nail – and so cannot be worried by things changing. Teleological talk, *final causation*, refers to things future – the nails were being bashed into to build the house – and can be worried by things changing. You might fail to get planning permission, and so have to tear it all down.

Yet, in the biological sciences we use function talk all the time. To take one of the most famous examples of them all, discovered and explained by the naturalist Henry Walter Bates, just a year or two after Charles Darwin published his *Origin of Species* in 1859 (Bates 1862; Kimler and Ruse 2013). Many species of butterfly are predated upon by birds. A natural protective strategy, very commonly taken, is to evolve in the direction of drab-colored wings, so the birds fail to see you. However, some seem to go almost in the opposite fashion, becoming even more brightly colored. Why? Because they are mimicking the members of other species – species that are poisonous and hence avoided by the birds. By slipping under the covers, as it were, these non-poisonous butterflies fool the predators and escape unharmed. Their bright,

mimicking colors serve the end, the purpose, the function, of protecting their possessors. And this is their intended function, even if perchance some young inexperienced bird scoops them up, not realizing that they are supposed to be vile tasting.

What's going on here? I argue that there are three possible approaches. That of Plato who sees an external intellect designing the physical world – especially the organic world. Natural things have functions, because the designer intended that. The intention is what counts, and that exists now not in the future. That of Aristotle, who wanted nothing to do with external designers, and who thought that in some sense the motive force for "final cause" lay within the object itself. The motive force exists now even if the butterfly gets eaten. That of Kant, who argued that neither Plato nor Aristotle is adequate, and the teleology of the world, of organisms (since he was writing post Scientific Revolution), is heuristic. There is no real causation. In the *Critique of Judgment* (1790), he said explicitly that this means that biology is second rate! "We can boldly say that it would be absurd for humans even to make such an attempt or to hope that there may yet arise a Newton who could make comprehensible even the generation of a blade of grass according to natural laws that no intention has ordered; rather, we must absolutely deny this insight to human beings." (Kant thought that God did it, but he could not say that in science.)

It took Charles Darwin to cut the Gordian knot by introducing the entirely law-bound process of natural selection (Ruse 1979a, 2018). Important for Darwin, making selection the biological equivalent of Newtonian gravitational attraction – shoving it to Kant – was that it does not just bring about change. It brings about adaptations, characteristics that seem as if designed for the well-being of their possessors. "How have all those exquisite adaptations of one part of the organisation to another part, and to the conditions of life, and of one distinct organic being to another being, been perfected? We see these beautiful co-adaptations most plainly in the woodpecker and missletoe; and only a little less plainly in the humblest parasite which clings to the hairs of a quadruped or feathers of a bird; in the structure of the beetle which dives through the water; in the plumed seed which is wafted by the gentlest breeze; in short, we see beautiful adaptations everywhere and in every part of the organic world" (Darwin 1859: 60-61). The point is that the struggle and the selection existed in the past – that is what made for the butterfly mimicking wing colors – and the assumption is that it is all going to work in the future. It might not. A new predator comes in. It is indifferent to the poisonous taste of butterflies. Your adaptive camouflage is of no use. You end up as dinner.

So here we have the answer to teleology, to purpose, to final cause – as found in organisms. (No one was resurrecting final cause in the purely physical world.) Plato was right in seeing organisms as design-like, and wrong in thinking that this implies a designer. There might be one, but not in science. Aristotle was right in seeing the teleology of organisms as in some sense internal, and wrong in thinking this demands some kind of vital force. Kant was right in seeing teleology as distinctively biological and heuristic, and wrong in thinking biology

second-rate. Biology is different because organisms are design-like, but this is thanks to natural selection, as naturalistic a cause as Newtonian gravitation. Biology is different not second-rate. No imaginary causes in the future pulling strings to affect the present.

As you will learn later, it was around this time that I started to get very interested in the history of science. Already, though, I can point to important ways in which it started to play out in my philosophizing about science. It turned me from just doing straight analytic exercises about science to doing more history of ideas, in the tradition of people like Arthur Lovejoy and Isaiah Berlin, where one uses our knowledge of the past to throw light on contemporary philosophical problems. When I first started working on teleology, it was all very analytic – as was the work of others wrestling with the same problems. For instance, a well-known attempt to speak to the teleology of biology came from the pen of the eminent logical empiricist, Ernest Nagel (1961). He argued that there is nothing inherently teleological about biology. The difference is that organisms are "directively organized" or "goal directed." Clearly influenced by the mechanisms of the Second World War, for instance homing devices on torpedoes that let them track their moving targets, Nagel argued that organisms (as opposed to inanimate objects, like planets) are goal directed and hence teleological in appearance if not reality. End-directed language is appropriate, in a kind of Kantian heuristic sense. I showed that this must be mistaken. Many organisms are not particularly goal directed – they cannot respond to change – but they are often highly functional. Sometimes indeed being very good at the job means that the slightest change takes one right out of focus. Nagel had confused being "adaptable" with being "adapted," and it is the second to which the teleology of biology refers (Ruse 1971).

I was right, but increasingly I felt that this kind of work – and there was a great deal more by others – only got a partial picture. One needed history to see the full picture. Why not indeed. I was an ardent evolutionist and that is what evolutionary studies are all about! As the great population geneticist Theodosius Dobzhansky (1973) used to say, "nothing in biology makes sense except in the light of evolution." I felt that nothing in philosophy makes sense except in the light of evolution, as given to us in history. For me, my work on teleology proves the worth of this adage.

SOCIOBIOLOGY

I get ahead of myself. I had made a good start as a promising young philosopher of science. It did not last. Within ten years, by the late 1970s, my reputation was on a slide down to the lowest depths. In 1975, the eminent, Edward O. Wilson of Harvard, published a huge book, *Sociobiology: The New Synthesis* (1975), where he argued that with the coming of "sociobiology" – the study of the social behavior of animals from a Darwinian perspective – a whole new area was declared for evolutionary studies. It is true that, in the *Origin,* Darwin had a chapter on social behavior – the bees and so forth – but although he had some profound insights – particularly about natural selection working always at the individual ("selfish gene") level

rather than for the unrelated group – he didn't have the genetical tools to dig very far beneath the surface (Richards and Ruse 2016). Following him, given the difficulties of studying such behavior, combined with the rise of the social sciences where, when you have seen one rat, you have seen the whole of the animal kingdom, social behavior had lagged far behind other fields like paleontology, biogeography and systematics. Now, argued Wilson, we can get a grip on the evolution and biology of social behavior, and through hundreds of pages he pursued his goal, looking at insects, lower vertebrates, mammals, apes and finally humans.

I read it with excitement and enthusiasm. Although I didn't necessarily agree with all of it, it truly was like opening wide open a door that to date had been cursed with rusty hinges and hard to pry even a little bit ajar. According to the little handicapped boy who could not make it, the children who followed the Pied Piper into the mountain saw green fields and rivers and sunshine before them. I shared that emotion. And, being me, I started immediately endorsing the program of Wilson – and of others to be fair, including the theoreticians William Hamilton (1964), John Maynard Smith (1964), Robert Trivers (1971) and George C. Williams (1966), as well as the brilliant popularizer Richard Dawkins (1976). Boy, was I in for a nasty shock. Born in England, as a reasonably bright child – I passed the dreaded 11+, the English test which takes place in the final year of primary education – I never did any biology. That was for "late developers." I just did mathematics, physics, and chemistry. Evolutionary biology was not on my agenda. It remained that way until I was in my mid-twenties and I found biology simply because it looked like a good thesis topic – relatively unexplored and the extant literature pretty awful. But I watched some television, particularly the artsy discussion programs on Sunday afternoons – prominent contributors, the already-mentioned J. B. S. Haldane and Julian Huxley (grandson of Thomas Henry Huxley and older brother of Aldous) – and I read the pertinent newspapers and magazines, and so forth. I knew the party line. We must be careful about topics like race, but humans are unambiguously part of biology and we should never forget that.

Not so in America. There, many intellectuals were Marxists, not keen at all on biological factors – genetic determinism – and often they were Jewish, struggling still with the horrors of the Holocaust and the underlying racial theories. They hated sociobiology, especially human sociobiology, and Wilson got the full blast of their scorn and contempt (Allen *et al*. 1976). It didn't help that among the leading critics were Richard Lewontin, geneticist, and Stephen Jay Gould, paleontologist and just starting on his meteoric rise as the great American science popularizer. They were Wilson's colleagues in the same department at Harvard. Entirely ignorant of the tsunami that was about to swamp all, I wrote an enthusiastic book in praise of sociobiology (Ruse 1979b). Naturally, my name became mud, and I was a special object of scorn by people of the left and (especially) feminists. Interestingly, many gay people were sympathetic to Wilson's message. They felt that it pointed to a genetic basis for sexual orientation, and as such removes the issue from the moral realm. One is gay because of what one is and not because one has chosen, deliberately, a life of degradation and filth. In fact, the whole point is that it is not a life of degradation and filth, but a perfectly normal adaptive strategy. It may be a minority

position, but Darwinism has no problem with that. Mimicking butterflies must be rare, otherwise predators would find them out. I should say that I went on to write a whole book on homosexuality – again, my Quakerism was kicking in, because in the fifties it was illegal in England and Quakers were in the lead in trying to get the law changed (Ruse 1988). The book was quite favorably received by both gays and straights – I think now I was right about the biology – although in respects it is terribly dated, for instance about such issues as gay marriage. They just weren't on my radar – or that of others for that matter. I did make a strong case against homosexuality being a sickness. This was a bit Oedipal, because the theme of the Quakers of my childhood was that, because it is a sickness, people should not be condemned. Although it is true that he considered homosexuality a form of (unchangeable) immaturity, I have always felt indebted to Freud for showing that homosexuals can be and generally are perfectly healthy people. Any related anxieties come from the prejudice society shows against them.

The Debunking Argument

By now, around the 1980s, probably disillusioned by my trials in the sociobiological controversy, I had started to lose enthusiasm for doing analytic philosophy of biology. There was however one interesting, and I would like to think, important side effect of my engagement with sociobiology. Something that for the only time in my life led me into the territory of regular philosophy, with – as you will learn – somewhat mixed results. I went into the controversy about the causes of human social behavior with the beliefs, the prejudices, of the analytically trained philosopher. That meant I followed people like G. E. Moore, assuming without argument that even though Darwinism may be true, it has nothing to say to us about the foundations of philosophy, especially morality. To assume otherwise is to commit the so-called "naturalistic fallacy." This of course is a version of Hume's prohibition against going from "is" to "ought." For all that I liked his science, this at once put me firmly against Edward O. Wilson, who started up front with his belief that Darwinism had everything to do with morality. In *Sociobiology: The New Synthesis*, firmly Wilson put ethics at the front of his endeavors. If the title of the first chapter, "The morality of the gene", does not flag you, then the opening words surely will:

> Camus said that the only serious philosophical question is suicide. That is wrong even in the strict sense intended. The biologist, who is concerned with questions of physiology and evolutionary history, realizes that self-knowledge is constrained and shaped by the emotional control centers in the hypothalamus and limbic systems of the brain. These centers flood our consciousness with all the emotions – hate, love, guilt, fear, and others – that are consulted by ethical philosophers who wish to intuit the standards of good and evil. What, we are then compelled to ask, made the hypothalamus and limbic system? They evolved by natural selection. That simple biological

> statement must be pursued to explain ethics and ethical philosophers, if not epistemology and epistemologists, at all depths. (Wilson 1975: 3)

With my fellow professional philosophers, I reacted as though I was a virgin aunt to whom an indecent proposition had been made. Then I started to wonder if there might be more to the story than this. Before I knew it, I was doing mainstream philosophy – into looking into the foundations of morality, into what philosophers call "metaethics" (Ruse 1986). I did not give up on the naturalistic fallacy – the modern-day version of the Humean is/ought distinction, that you cannot get claims about values from claims about facts. That I would like to have sex with Janet (I rush to say, an entirely fictitious person) does not translate into it would be a good thing if I had sex with Janet, or some such thing. If we are both married to other people, it might be a very bad thing. I still have not given up on the fallacy. In the case of evolution, of Darwinism, I still don't think that a scientific theory can justify claims of morality. But I saw that one can do, in sporting terms, an end run around the fallacy. One can show – thanks to Darwinism -- that in talking about facts and talking about morals, one is not talking about things of the same ontological status, so in a way the naturalistic fallacy may still hold but it loses its bite. One cannot deduce across an ontological gulf – from (let us say) idealistic chalk to concrete cheese – but whoever thought one could?

In our case, one can argue that facts and moral claims are of different ontological status, and so there is no metaethical justification of morality—of what we ought to do, what philosophers call substantive or normative ethics – and that Darwinism shows this to be so! How? Because Darwinism is not directed in any way, and in particular not directed towards knowledge of absolute truth when it comes to behavior and the reasoning and emotions behind it. Apart from the fact that new variations are random, not in the sense of uncaused but in the sense of not appearing to need – to pick up the earlier example, you might need a black coat for camouflage against a new predator, but you are as likely to get a white fur – selection itself is relativistic. What works is what works, or rather what works in one situation is not necessarily what works in a different situation. Pragmatism rules okay. Of course, if a speeding train is bearing down on you, as to its existence, pragmatism is not going to offer many choices. The person who says "just a theory not a fact," will never again encounter a speeding train. But what you should do in the face of a train – pull back or move forward – and even more what you should do for others about the train – yell or shove or remain silent and still – is another matter. Darwin himself saw this: "But then with me the horrid doubt always arises whether the convictions of man's mind, which has been developed from the mind of the lower animals, are of any value or at all trustworthy. Would any one trust in the convictions of a monkey's mind, if there are any convictions in such a mind?" (Darwin to William Graham 3 July 1881; *Darwin Correpondence Project*, letter no. DCP-LETT-13230, accessed on 12 November 2018, http://www.darwinproject.ac.uk/DCP-LETT-2814). Our convictions are trustworthy at a pragmatic level – for getting through life – but not necessarily at an absolute level.

This said, if we are going to be social animals, and that humans certainly are and it is a very good adaptation – Ben Franklin again, on signing the Declaration of Independence: "Well gentlemen, we must all hang together or assuredly we will all hang separately" – we need some way or ways of reciprocating and working as a unit. That, as Kant (1785) pointed out, is not morality. The trouble is that there may be more than one way of skinning the cat, or more prosaically of getting on together. Darwin spotted this.

> If, for instance, to take an extreme case, men were reared under precisely the same conditions as hive-bees, there can hardly be a doubt that our unmarried females would, like the worker-bees, think it a sacred duty to kill their brothers, and mothers would strive to kill their fertile daughters; and no one would think of interfering. Nevertheless the bee, or any other social animal, would in our supposed case gain, as it appears to me, some feeling of right and wrong, or a conscience. (Darwin 1871, 1: 73)

So, it could be that you (and your fellow humans) spend your whole life thinking you should do one set of things, when thanks to the vagaries of evolution through natural selection, you should be doing something else entirely. Instead of celebrating analytic philosophers and putting them on a pedestal, you ought to be kicking them out of the house as winter approaches. And if this isn't a *reductio* of an objective foundation to metaethics – you should be doing something, but you can never know this – I don't know what is.

Expectedly, this argument – now known as the "debunking argument" – went over like the proverbial lead balloon. Especially since I was writing on the biology of humans and the sociobiological controversy was still fresh in people's minds. I even went so far as to publish a couple of articles on the subject with Edward O. Wilson (Ruse and Wilson 1985, 1986). "Ethics is an illusion put in place by our genes to make us social cooperators." Obviously, we were being intentionally provocative. At the level of substantive or normative ethics – what should I do? (as opposed to metaethics, why should I do what I should do?) – Ed Wilson is even more boringly conventional than I. I doubt he has ever used a yellow marker on a library book or not returned it on time. It was just at the level of foundations that we did not want to appeal to God or Platonic non-natural properties or whatever. As it happens, I think Wilson and I had (and still have) significant differences on the relationship of Darwinism to morality – more on this later – but after a hundred years plus of scorn, we were now standing firmly for evolutionary ethics.

These were undoubtedly the most referenced articles I have ever written, and being me I at once wrapped it all up in a new book, *Taking Darwin Seriously: A Naturalistic Approach to Philosophy.* So awful were the reviews that a year or two later, for my fiftieth birthday, I made a background collage of the worst comments and used it as a party invitation – *come and celebrate fifty years of unbroken success* – and sent it to all the reviewers. I am glad to say that all but one responded in the friendly, joking way that it was intended. (It turned out that the one was just

warming up for the next thirty years of reviewing Michael Ruse books!) Today however, what is now known as the "debunking argument" is, if not widely accepted, respectable enough to be discussed critically in journals so posh and distinguished that they would never accept anything by me. Naturally, I have taken the opportunity to publish a *Cambridge Handbook*, with arguments pro and con of my thinking (Ruse and Richards 2017).

So, my career as a regular philosopher, about twenty years after it started, came to an end. I and one or two others had got the field going, and now some very sophisticated and talented younger people were entering the field. I wanted to move in other directions. Yet for whatever motives – Quaker disinterested altruism or a determination not to be pushed aside – I did found an analytic philosophy of biology journal, *Biology and Philosophy*, which I edited for fifteen years and which thrives still. Also, soon I was in the book editing business, and I am still in the middle of the third of such projects for Cambridge University Press. I still enjoy this, especially making places for junior, hitherto-unknown researchers (including women), although increasingly I find the need to work with computerized systems very stressful. I try to co-opt a co-editor for whom computers hold no terrors. All of this, I suppose, falls very much into the field of what one might call administration. In the world of research, as we shall see, I was now galloping off in other directions.

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A DARWINIAN PILGRIM'S MIDDLE PROGRESS

Michael Ruse

Lucyle T. Werkmeister Professor and Director of the *History and Philosophy of Science* Program

Department of Philosophy

Florida State University, USA

Email: mruse@fsu.edu

ABSTRACT

[…] Part two of three in an autobiographical series which…

HISTORY OF SCIENCE

The issue of teleology rattled me. I still remember when writing my first book, *The Philosophy of Biology* (1973), all was going swimmingly as I showed that Darwinian evolutionary biology is not a different kind of science, not second-rate, but scored up there with the best of logical empiricist criteria. Then I hit the chapter on purpose, on final cause, and it all ground to a juddering halt. Somehow it didn't fit. I have explained how the usual types of explanations, like that of Ernest Nagel, suggesting that teleology was just a short-hand way of denoting that we are dealing with goal-directed systems, simply were not adequate. Could this mean something deeper? Could it mean that those ultimate metaphysical yearnings – thoughts of reduction, meaning that biology can be shown a special instance of physics, as perhaps is true of chemistry – are just not on? Biology will forever remain distinctive. Which raises the question of how one would express and analyze this formally. Already, I was getting a sense that a key part of the picture was missing – I cannot honestly say that I found this in time to finish my book, and the discussion there rather glosses over the problem – but as the question started to grip me, so also did the potential answer. I was getting a sense of what that key missing part had to be. It was *metaphor*! The metaphor of design is appropriate in biology as it is not in physics. Those brightly colored butterfly wings are design-like in a way the moon is not.

I stress that this was not an obvious or easy move to make. Back around 1970, when I first started thinking seriously about these issues, most conventional philosophers of science would not have been impressed. They would have argued in a Kantian fashion that metaphors in science are heuristically valuable but not essential parts of the theory. Even if butterfly wings are design-like, since they are not in fact designed, such talk cannot be part of the *real* science. It

must be theoretically eliminable or some such thing. However, by this time, a new and unexpected horse was coming up fast on the inside. In 1962, the historian of science, Thomas Kuhn, published his ground-breaking work, *The Structure of Scientific Revolutions*. Like most philosophers, my immediate reaction was one of rejection, and to this day I would not speak of myself as a Kuhnian. However, he made two central claims that proved of great importance for and influence on my subsequent thinking. First, he argued that philosophers of science must start to take seriously the history of science. Second, he put forward his theory of paradigms, world pictures that he claimed are the foundation of scientific thinking. I am not sure of exactly when he first made the link, but metaphor as essential was right up there from the first, and later he certainly identified paradigms with metaphors (Kuhn 1993).

For me it was like the meeting of the suns in Jim Henson's *Dark Crystal* (Ruse 2018). I plunged into Darwin studies, spending a year-long sabbatical at the University of Cambridge retooling as a historian. My time as an analytic philosopher of biology resulted in a kind of overview of the field (Ruse 1973). Then, my time as a historian of Darwin and his theory likewise resulted in an overview of that field (Ruse 1979). Although I was no Kuhnian, his influence hovered, reinforced by the fact that my chief historical mentor (Robert M. Young) at Cambridge was a Marxist who stressed the social influences on science and my chief philosophical mentor (Mary Hesse) at Cambridge was a strong booster of metaphor. Working on a theory that talked of the struggle for existence, natural selection, final cause, division of labor, tree of life, how could I not take metaphor seriously? Most particularly, I bought in – as I still buy in – to the Aristotelian thesis that metaphor – "the application of an alien name by transference" (*Poetics* in Barnes 1984) – is not mere decoration, the icing on the top of serious thought. When we are thinking by analogy, in some very important sense, the act is one of creation as well as of discovery. So, for instance, if I say that old age is the evening of life, I am not simply saying that old age comes after childhood and adulthood, as the evening comes after dawn and midday. I am drawing attention to ways in which old age and evening can resemble each other. One is tired, one no longer has the creative energy, one wants to sit down and let time flow by, without feeling the need to get up and interrupt. I am forcing on you new connections and insights that you did not have before. Sometimes you might think they are less than useful. Every day has an evening. Not every life has old age. But as the English logical empiricist Richard Braithwaite (1953) said about a similar issue, the price of the use of models is eternal vigilance. In science, you cannot do good work without metaphor, but like all powerful tools – fire comes to mind – it is a good servant but a bad master.

I joke that, having started my intellectual life as an analytic philosopher, an eager logical empiricist in the school of Ernest Nagel and Carl Hempel, I moved to a historical life as a social constructivist. I was never a big enthusiast for Michel Foucault, but there were similar themes and attitudes (Ruse 1999). Through metaphor, I saw the history of science as deeply cultural. Obviously, Darwin's theory is about a real objective world, one that exists when we are not around. Organisms really did evolve. They did not appear miraculously. How we understand

all of this is filtered through the metaphors of our culture. Think for a moment of the debt of Darwin to the Anglican (Episcopal) Church in which he was raised. We start with Malthus (1826) and the struggle for existence. Malthus, an Anglican clergyman writing at the end of the eighteenth century, was (like many people) amazed by and frightened of the huge increases in population coming in Britain thanks to the Industrial Revolution (Mayhew 2014). Whereas before, living on the farm, one controlled oneself until the parents grew old and one could take over the property, now one moved to a city, married early, and started to raise a large family that would be an economic asset working in the new factories. Huge cities like Birmingham and Manchester sprang into being, and the capital London was doubling in size. Malthus, who was more influential on Darwin than perhaps any other figure, put this all in a natural theological context. God saw that unless we had a spur, we would just go on reproducing and do nothing to help ourselves. The struggle for existence made life stern and gave reason for what Malthus primly referred to as "prudential restraint." The struggle was God's way of imposing self-control.

Selection of course is just what the Good Shepherd practices, and the resulting adaptation is right out of Archdeacon William Paley's *Natural Theology* (1802). The eye is like a telescope because it is fashioned for the same end. Indeed, the "***eye*** … would be alone sufficient to support the conclusion which we draw from it, as to the necessity of an intelligent Creator." Of course, Darwin is giving a different explanation, but that is the whole point of metaphor: "the application of an alien name by transference." So, the story continues. Why do we have so many species? Because of the division of labor. "The advantage of diversification in the inhabitants of the same region is, in fact, the same as that of the physiological division of labour in the organs of the same individual body." Continuing: "No physiologist doubts that a stomach by being adapted to digest vegetable matter alone, or flesh alone, draws most nutriment from these substances. So, in the general economy of any land, the more widely and perfectly the animals and plants are diversified for different habits of life, so will a greater number of individuals be capable of their supporting themselves. A set of animals, with their organisation but little diversified, could hardly compete with a set more perfectly diversified in structure" (Darwin 1859: 115-116). Where does this all come from? Ultimately from the eighteenth-century, Scottish, philosopher-economist Adam Smith, who thought it was all put in place by the wise forethought of the Invisible Hand.

> Finally, just to complete the story, where do we all end up?
>
> 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 green and budding twigs may represent existing species; and those produced during each former year may represent the long succession of extinct species. …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)

"And out of the ground made the LORD God to grow every tree that is pleasant to the sight, and good for food; the tree of life also in the midst of the garden, and the tree of knowledge of good and evil" (Genesis 2:9). Enough said.

At least, enough said to convince me that although Darwin was a great revolutionary he was no rebel. He came from his British culture and he returned to it. Even being buried in that Valhalla of English heroes, Westminster Abbey! I should say that in my overview of the Darwinian Revolution, 1979, I did make much of metaphor and how (as the history of British religion shows) Darwin was embedded in his culture. I did not then emphasize all of this as I would now. I feel I should have been more aware of the overall picture about Darwin's thinking coming from his Victorian society and returning to it. In a second edition to my book, twenty years later, I added a preface to this effect, and elsewhere (especially in a recent debate with my longtime, friendly enemy Bob Richards) I have made this point fully and often (Richards and Ruse 2016). I suppose I should feel guilty, but my main reaction is one of gratitude. The life of a scholar keeps giving and giving as one delves ever more deeply into a subject.

CREATIONISM

We are now around 1980, and at this point, my personal philosophical pilgrimage took a side road – not, I am glad to say, like wandering off into the Slough of Despond as did John Bunyan's Christian. At this time, the threat of religious literalism, Fundamentalism or (as it was known) Creationism, reared its ugly head, and became a threat to society as its enthusiasts sought to have Genesis taught as fact in public school biology classes. The universe is about 6000 years old, humans are the climax of six days of creation and initially there were only two, Adam and Eve, and sometime thereafter the whole world was covered by waters and but a few survived (Numbers 2006). As one might say, I was preadapted to take on this sort of thing. On the one hand, I was both a philosopher of biology and a Darwinian, so I could talk about things like the nature of scientific theories and the authenticity of natural selection, apart from the fact that my Marxist mentor may not have converted me to his philosophy but certainly made me (as I have just shown) highly sensitive to such things as the influence of religion on (or not on) science. On the other hand, fifteen years of non-stop teaching of undergraduates had taught be how to argue in public – most importantly, that a good joke can be worth three serious arguments. This led me, along with such luminaries as Stephen Jay Gould – with whom, I should say, I personally always had a very warm and friendly relationship – to appear as a witness for the American Civil Liberties Union (ACLU) in 1981, in Arkansas. My best joke was when the assistant attorney general was cross examining me on my religion, trying to show that I was a perfidious atheist. I

blurted out: “Mr Williams, can’t you see that I am not an expert witness on my own religious beliefs?” Everyone laughed and when he tried again the judge told him to move on. In the end, we won hands down, and immodestly I like to think my philosophical contribution – up to the last moment the ACLU lawyers were not sure they wanted to bring a philosopher to the stand – was crucial. Certainly, it figured highly in the judge’s list of criteria for what separates science from religion.

1. It is guided by natural law;
2. It has to be explanatory by reference to natural law;
3. It is testable against the empirical world;
4. Its conclusions are tentative, i.e. are not necessarily the final word; and
5. It is falsifiable.

(Overton 1982)

Science and Religion

Naturally, I wrote a book or two on the topic, burnishing my abilities and reputation (Ruse 1982, 1984, 1988). It helped that some of my more philosophical colleagues wrote strongly against my courtroom appearance, feeling that behaving like that in public demeans the profession. Of course, I included them in a collection, heaping coals of fire on their heads, and pointing out that the issue was not whether Creationism Science (as the literalists labeled their position) was bad science – which is what they wanted to argue – but whether Creationism Science was religion – which is what I argued and what the court needed. Teaching bad science is not unconstitutional. Teaching religion is. That battle over, I turned back to my personal program, of which more in my next (and final) episode. Indeed, for fifteen years I did little more work in that direction. To be honest, conceptually Creation Science is not that interesting, and I felt (and feel) much the same about the smoother version – Creationism-lite – known as “Intelligent Design Theory” that sprang up in the 1990s. It is true that early in the new century, with a leading proponent, I did co-edit a collection on the topic, comparing Intelligent Design to Darwinian theory, but I looked upon that as more a political act – keeping people up to date on things – than anything particularly philosophical or scholarly (Dembski and Ruse 2004).

However, to use a phrase – a metaphor! – from that most dreadful of nineteenth-century English schoolboy books, *Eric or Little by Little*, the silver cord could not be broken. The science-religion relationship was tugging away at me and by the new century could no longer be ignored. After the Arkansas trial, I got acquainted with a liberal Christian organization called “The Institute of Religion in an Age of Science” (IRAS). The title is rather pompous. The group is not. It meets for an annual, week-long conference on the most beautiful place on earth, Star Island, in a nineteenth-century, former hotel-sanitorium, off the coast of New Hampshire. I got into the habit of going every year with my family, and I found that discussing the relationship

between science and religion, specifically between Darwinian evolutionary theory and conventional Christianity – not the extremes of evangelical Protestantism – was interesting and challenging. What about Darwin's theory as just regular professional science, striving hard and successfully to be epistemically respectable? Where does this stand with respect to religion? Obviously, it clashes with some forms – there can be no literal Adam and Eve, no Flood, possibly no water into wine, not to mention the Resurrection. But if you have a more updated form of religion – and I think a lot of Christians would buy into this – certainly the Quakers of my childhood and I suspect many more, absolutely convinced that Jesus is their Savior, then – inspired to write on the topic, I asked: *Can a Darwinian Be a Christian*?

It was a good topic for me. It helped me to bring together a series of issues that had long hovered at the back of my mind, and I was able to tie them in with work that I had been doing as a philosopher. Take for instance the question of morality and my belief that Darwinian theory points to what we philosophers call "moral non-realism," meaning that there are no foundations. This seems deeply anti-Christian. However, drawing on the work I had done on the morality of homosexuality, if you realize that the most impressive Christian analysis of morality is Aquinas's natural law theory – God wants us to do that which is natural – Darwinian thinking is a piece of candy. The Darwinian says do what is natural. Caring for children is natural and raping young girls is not. True, the Darwinian says this is all a matter of selection-caused psychology – normal people think this way – but the Christian simply agrees with this and puts God behind it all. The Christian says that loving children is a good thing because that is the way that God has made us, and if He wanted to make us through evolution, then so be it. Of course, this doesn't mean that everything is at once made easy and agreeable. The question of sexual orientation is a prime example where there are ongoing disagreements, centering very much on what is natural. But at least one has now the tools to move forward on such issues.

I was particularly pleased with the light I was able to throw on the problem of evil, something I had feared was going to be a major problem, exacerbated by Darwinism. Had not Darwin himself written:

> I own that I cannot see, as plainly as others do, & as I sh^{d} wish to do, evidence of design & beneficence on all sides of us. There seems to me too much misery in the world. I cannot persuade myself that a beneficent & omnipotent God would have designedly created the Ichneumonidæ with the express intention of their feeding within the living bodies of caterpillars, or that a cat should play with mice. (Darwin to Asa Gray, 22 May, 1860; *Darwin Correspondence Project*, letter no. 2814, accessed on 12 November 2018, http://www.darwinproject.ac.uk/DCP-LETT-2814)

Generally, the problem of evil is divided into that of moral evil – Heinrich Himmler – and natural evil – the 1755 Lisbon earthquake immortalized in Voltaire's *Candide* (1759). As far as

moral evil is concerned, the standard answer is to refer to free will – it was better that Himmler have free will than that we all be robots – and many think that Darwinism implies determinism and that there can be no free will. I did not see it as part of my obligation to defend the free will defense as such – in fact, I am not at all sure that it does excuse God making Heinrich Himmler possible – but I was able to show that (in the language of evolutionists) instead of taking an *r-selected strategy* – many offspring with little parental care – humans have taken a *K-selected strategy* – few offspring with lots of parental care. This means we need to have a dimension of freedom to deal with unexpected barriers and so forth. Mother ant can afford to have thousands washed away in a rain stop. Mother human cannot afford such a luxury and must take steps to protect her children. Like Mars Rover, we are determined, but like Mars Rover we have the ability to deal with obstacles (Dennett 1984). As hinted in the previous article of this series, according to Ernest Nagel (1961), we are goal directed or directively organized. As far as natural evil is concerned, the standard answer is that of Leibniz. In this best of all possible worlds, bad things are still going to happen. Fire causes burning causes pain. Better pain than scorching to death. Of all people, Richard Dawkins (1983) has argued that the only natural way to get design-like phenomena is through natural selection, and hence the pain and suffering of natural selection is part of the package deal.

I won't say I felt smug about what I had written, but I did feel pleased. I knew only too well that much that was written on this sort of topic was done by Christian apologists – often by good scientists but with little philosophical or theological training – and there was a lot of special pleading. I had been able to show, by bringing proper philosophical tools to bear on the problem, that real progress could be made (I never pretended that mine was the final word) by someone taking the science seriously and not cherry picking that which seemed favorable. A lot of people agreed with me. Not all! I had of course expected opposition from my Creationist friends, and I got it. What I had not expected was the vitriol I got from many of my fellow Darwinians, especially those ferocious non-believers who in the early years of the new century were earning the title of "New Atheists." On one much-read blog I was called a "clueless gobshite." In the *God Delusion* (2006), Richard Dawkins likened me to the parsimonious appeaser of Munich, Neville Chamberlain. He advised reporters always to check with someone else after they have talked to me. Jerry Coyne (2002), an evolutionary biologist at the University of Chicago, told his readers that George Orwell was right, only an intellectual could believe the nonsense I propound.

All of this raises three questions. First, why were the New Atheists so ferocious? After all, I am a committed Darwinian and, against a Creationist attack, had defended the theory in federal court. Second, did they have any good points? Third, why didn't I just declare victory and move on? I had basically done this with the Creationists. So why not now? The answer to the first question really has little to do with me. The early part of the new century was seeing the rise and success of the religious right. The evangelicals were gearing up for the ongoing attack on abortion. Gays and lesbians were fighting hard to made advances or at least not to lose that

which they now had. The state of Israel had swung right and was increasingly oppressing Arabs on the West Bank and the like, attitudes encouraged and fueled by American evangelicals who saw end times approaching. Then came the horror of 9/11, brought on by Islamic fanaticism, of a degree equal to anything the Christians were capable of. If this were not enough, in 2002 the *Boston Globe* reported on horrendous cases of sex abuse committed by the Catholic clergy, covered up by those in authority. This was but the start of a still-continuing worldwide flood of such cases. Theism or atheism has never been purely a matter of epistemology (Ruse 2015). From the days of Plato, who wanted to lock up atheists, have them fed only by slaves, and buried outside the city walls, these questions have always been deeply ethical. Belief or non-belief is a moral matter. The New Atheists have all the driven fervor of Old Testament Prophets, and I got caught up in the whirlwind. Perhaps, as Freud said, it was all a matter of the narcissism of small differences. I should have been firmly in the corner of New Atheism. I was not. I gave as good as I got. "The *God Delusion* makes me ashamed to be an atheist." No wonder I was hated.

Second, there was one really good point that my critics made. I had thought going into the Darwinism-Christianity debate that it was going to be the problem of evil that would be the big difficulty. As I showed above, although I still think the problem of evil is a big problem, I didn't think that Darwinism was in play here – or if it was, it helped the Christian! One point that did puzzle me, that I rather papered over, that the critics called me on was about the directionality – or rather, the non-directionality – of Darwinism. There is no immediately good reason why humans should have evolved. I will take up this point in some detail in my third essay, but the point here is that we might not have been. Not just like us but green or with six fingers, but not intelligent beings at all. Surely, if Christianity insists on anything, it is that we are not just here by chance. We are made in the image of God and our being is the point of it all. How does one reconcile these different positions? In my book, I simply said that God could do it if He were so inclined – the kind of answer St Augustine gave – but as the critics pointed out this gets me perilously close to some kind of guided, theistic evolution – rather like Intelligent Design Theory -- which is simply not acceptable to today's science. The answer I would give today appeals to multiverses. If, given an infinity of chances, a monkey will type Shakespeare, then given an infinity of chances humans will appear. God can get humans naturalistically, so long as He is prepared to keep at the job long enough – presumably no problem for a being outside time and space. Of course, this does mean that the cosmos is littered with huge numbers of semi-morons, all trying to produce plays that cannot be – should never be -- acted. "Friends, Romans, countrymen, give me your gobshites."

The third question is why I kept at the Darwinism-Christianity problem. First, obviously, my Quaker heritage reinforced with my friendships forged on Star Island meant (and still means) that I have a warm feeling about Christianity, even if it is not a religion to which I now subscribe. In its central teaching and practices, I think it a force for good. Second, from the days of Arkansas I realized that politically the kind of case I was making was valuable. It did give evolutionist a way to argue that their thinking is not only non-threatening to the Christian but in

respects positively enervating. Exploring the world of evolution is testifying to the glory of God. Third, there were interesting problems still to be solved, problems for which my earlier work on Darwinian theory, its philosophy and its history, and the key role of metaphor had long prepared me.

ACCOMMODATIONISM

Agree that science and religion, Darwinism and Christianity, can coexist. The question still to be answered is why they can coexist? Stephen Jay Gould (1999) had an insight into the problem. He argued that science and religion are different *Magisteria* – world views and approaches – and as such cannot clash. The problem is that he thought that science deals with facts whereas religion deals only with ethics. The world is round as opposed to love your neighbor. This is clearly inadequate. Religion – the Christian religion – does want to make factual (ontological) claims. God exists, humans are made in His image, Jesus was the son of God, eternal salvation is possible. The answer I argue lies in the metaphorical nature of modern science (Ruse 2010). Until the Scientific Revolution, what linguists call *the root metaphor of science* – the metaphor that underlies everything – was that of an organism. That is why final causes were so crucial. The world was a living being – Gaia – in some sense, and we understood things organically. Despite a strong recent revival of this idea – another book! – the metaphor then changed to being that of a machine (Ruse 2013). Robert Boyle was good on this. He argued that the world is "like a rare clock, such as may be that at Strasbourg, where all things are so skillfully contrived that the engine being once set a-moving, all things proceed according to the artificer's first design, and the motions of the little statues that as such hours perform these or those motions do not require (like those of puppets) the peculiar interposing of the artificer or any intelligent agent employed by him, but perform their functions on particular occasions by virtue of the general and primitive contrivance of the whole engine " (Boyle 1688: 12-13).

Here, Thomas Kuhn kicks in. He saw that the strength of a paradigm/metaphor is that it directs your thinking in certain ways and rules out some questions as irrelevant. Take an example from poetry, and modify Robert Burns from a simile to a metaphor. "My love is a red, red rose." We know what the poet means. His love is beautiful in a radiant sort of way. She is young and fresh, not raddled by years and experience. If he is joking, he might be referring to the fact that his love tends to be a bit prickly and should be handled with care. Is his love good at mathematics? Is his love a Protestant or a Catholic? As it happens, these are answerable questions, but not in this context. They are irrelevant. Same in science. The machine metaphor is incredibly fertile. You look for laws and causes and will not take no for an answer. But there are certain questions that you just don't answer.

Here is a list of four. The *first* is what Heidegger (1959) calls the "fundamental question" of metaphysics: Why is there something rather than nothing? This does not mean something temporal. The Big Bang is not an answer. The question is about the very nature of existence.

Why the Big Bang? The fact that we cannot answer it doesn't mean it is not a genuine question. Has the United States of America reached the tipping point and is about to decline and fall like the empires of Rome and Britain before them? I cannot answer this, but it is a genuine question. In the case of Heidegger's question – Why is there something rather than nothing? – the machine metaphor in which modern science is embedded shows why it is not a scientific question. The metaphor takes existence and origins for granted. Of course, you can ask where Ford got the aluminum it uses in its cars and they can reply: Québec. What was the origin of the aluminum ore in Québec? Ultimately, the aluminum or its components is a given. "First catch your hare."

Second, morality. Machines are not moral or immoral. They are amoral. The guillotine is a machine for chopping off heads. I think it is a very bad thing. I suspect that most of the inhabitants of the state in which I live, Florida, think it a very good thing. Their only regret is that executions are no longer public. Science does not speak to morality. That is, it doesn't speak to moral foundations. It can enter moral decisions. You may think I am being a little bit shifty here because I argue that Darwinian evolutionary biology shows that morality at the level of directives – substantive or normative ethics – has no foundation – metaethics (Ruse 1986). This is true, but I think it is still open to ask why it is that nature is such that ethics is needed.

Third, consciousness. I am right with Leibniz in the *Monadology*. Machines don't think:

> One is obliged to admit that ***perception*** and what depends upon it is ***inexplicable on mechanical principles***, that is, by figures and motions. In imagining that there is a machine whose construction would enable it to think, to sense, and to have perception, one could conceive it enlarged while retaining the same proportions, so that one could enter into it, just like into a windmill. Supposing this, one should, when visiting within it, find only parts pushing one another, and never anything by which to explain a perception. Thus it is in the simple substance, and not in the composite or in the machine, that one must look for perception. (Leibniz 1989: 215)

I don't even know what a solution to consciousness would look like. In many respects, I follow philosopher Colin McGinn (2000) and am a "new mysterian," doubtful that we have the capacity to solve this (genuine) problem.

Finally, there is the question of ultimate meaning. You might think that this shouldn't be here. After all, the whole point of machines – of artifacts – is that they are made for something. In Robert Boyle's case, clocks are made for telling time. So, it is legitimate for – expected of – a scientist to ask what is it all for? Not so fast. Even with metaphors, especially with metaphors, you can restrict the domain. The success of science depended more and more on excluding purpose questions – final-cause questions – and concentrating on machines as things that work

according to ongoing unbroken law. Forget the ends, especially the ultimate ends, and focus on the mechanism. Even with an organism, other than those designed by us, you don't ask what is the point? What is the point of a dandelion? A dandelion just is and now spend your time trying to work out things like its methods of reproduction.

The machine metaphor shows that there are unanswered questions in science – genuine questions that science does not even attempt to answer – and by thinking on the nature of metaphors, we can see why. It is however open to religion to offer answers. It can and does offer answers to all these questions. Why is there something rather than nothing? Because an all-powerful and all good God freely created the universe and everything in it, including our planet and us humans. What is the foundation of morality? The will of God. What is consciousness, sentience? Being made in the image of God. What is the meaning of it all? Salvation, eternal life and joy with our Creator.

Of course, there are some time-honored questions about these answers, but note that the questions must be philosophical or theological. They cannot be scientific. The Creator God must in some sense be a necessarily existing Being. Aquinas made it very clear that it cannot be part of the regular causal chain, or one simply asks: What caused God? (Ruse 2015). God is cause of Himself (or Itself). Many, including myself, are not at all sure this makes much sense. That is not quite the point here. What is the point here is that Darwinian evolutionary theory does not disprove the notion that God is cause of Himself. On that matter, it is silent. It is points like these, and similar points that can be made about the other issues like consciousness – Darwinian theory says nothing about us being made in the image of God – that persuades me that accommodationism is a viable option for a philosopher like me. Science and religion, Darwinian theory and Christianity, really are speaking to different things and, in this sense, Gould was right. By their very natures they cannot clash. Where Gould was wrong was in thinking that this is all a matter of fact and ethics. It is a factual claim that God created the universe. It is not a claim of science. Steven Weinberg, Nobel Prize winning physicist, has moaned: "The more the universe seems comprehensible, the more it also seems pointless" (Weinberg 1977: 154). Why should he be so surprised? He is not in the business of searching for that kind of meaning.

More work to be done

I wrote up much of this in a little dialogue (Ruse 2008) – the second edition (2016) is much more fun, introducing a transsexual pagan (a result of my work on the Gaia hypothesis) – and then more formally in a book published about ten years ago: *Science and Spirituality: Making Room for Faith in the Age of Science* (2010). My subtitle, that my publisher would not let me use as the main title, reflects Kant's saying: "I had to deny knowledge in order to make room for faith" (Kant 1998: 117). Two of my teachers – Stephan Körner at Bristol and Lewis White Beck at Rochester – were eminent Kantians, and (despite differences) I have always had

an affinity for that philosopher. However, even as I wrote and published, I was already riding off on another horse, one that had occupied me for many years and that has brought me to where I am today. I wrote above of Freud's comment about the narcissism of small differences. He was talking about *religious* differences. This is the clue to where I was going and where I am now.

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A DARWINIAN PILGRIM'S LATE PROGRESS

Michael Ruse

Lucyle T. Werkmeister Professor and Director of the *History and Philosophy of Science* Program

Department of Philosophy

Florida State University, USA

Email: mruse@fsu.edu

ABSTRACT

[…] Part three of three in an autobiographical series which…

VALUES IN SCIENCE

In 1979, I published my book *The Darwinian Revolution: Science Red in Tooth and Claw*. Then, as I explained, I got diverted off to other issues, first sociobiology, then Creationism, and after that ethics and the debunking argument. My interest in the history of science continued and, as I rather jokingly explained, although in philosophy I was a pretty straight shooter – logical empiricist, thinking in terms of laws and axiom systems and theoretical entities and the like – in history I inclined to social constructivism. I could never have been an out-and-out idealist, like some postmodernist thinkers, arguing that reality doesn't count in science and it is all culture and subjective desires and interests (Collins 1981). But I did take very seriously the idea that culture is an important part of science. How could I not, having just written a book arguing that Darwin's theorizing was deeply influenced by his Anglican past? So, my philosophical problem – remember, I was never a straight historian but always a historian of ideas, wanting to use history to solve philosophical problems – was how to avoid the Scylla of rigid objectivity (what Popper (1972) called "knowledge without a knower") while at the same time escaping the lures of the Charybdis of rank subjectivity.

Already, thanks to my work on teleology, I started to sense that the key was going to be the notion of value or values. The very raison d'être of the logical empiricist philosophical approach – based as it was on the physical sciences – is that it drains science of values. It tells it like it is, not as we would like it to be. The moon just is. Final cause, however, brings value in right up front (Ruse 2017b). The bright wing is of value to the butterfly because it helps its

possessor to escape predators. That was why Ernest Nagel (1961) offered his mistaken analysis in terms of goal directedness. It was all a matter of machines in action, without having value in themselves. (Of course, machines have value. An automobile is for transport. As explained earlier, however, after the Scientific Revolution, that aspect of the root mechanist metaphor was ignored, and the focus was exclusively on laws in motion (Ruse 2010).) I was able to show that the problem of teleology and value is not insoluble. Using Nagel's own distinction of science-acceptable relative values – the diesel engine is more efficient than the gasoline engine – versus science-unacceptable absolute values – being made in the image of God, we humans are of more value than other organisms – I argued that the values produced by natural selection are relative values – one organism is fitter than its competitors – and so there is no big issue about the values of final cause in biology.

History had already taught me that there was more to values than this and that absolute values were going to be significant. Charles Darwin, for instance, was no less convinced of the absolute value of humans than are the Christians. At the end of the *Origin of Species*, he wrote: "as natural selection works solely by and for the good of each being, all corporeal and mental endowments will tend to progress towards perfection," hence, "from the war of nature, from famine and death, the most exalted object which we are capable of conceiving, namely, the production of the higher animals, directly follows" (Darwin 1859: 489-490). The question therefore was not whether absolute values are involved, but what their role and what light this throws on the nature of science. I needed to find an example – a case study – and, given Darwin's enthusiasm, progress was the obvious candidate: evolution from the simple to the complex, from the worthless to the worthy, from the blob to the human.

It was a good example to choose, for – Charles Darwin aside – I knew full well that progress was and still is in many circles a matter of some interest, not to say strong commitment. In the eighteenth century, there was Charles Darwin's grandfather, Erasmus Darwin.

> Organic Life beneath the shoreless waves
>
> Was born and nurs'd in Ocean's pearly caves;
>
> First forms minute, unseen by spheric glass,
>
> Move on the mud, or pierce the watery mass;
>
> These, as successive generations bloom,
>
> New powers acquire, and larger limbs assume;
>
> Whence countless groups of vegetation spring,
>
> And breathing realms of fin, and feet, and wing.

Thus the tall Oak, the giant of the wood,

Which bears Britannia's thunders on the flood;

The Whale, unmeasured monster of the main,

The lordly Lion, monarch of the plain,

The Eagle soaring in the realms of air,

Whose eye undazzled drinks the solar glare,

Imperious man, who rules the bestial crowd,

Of language, reason, and reflection proud,

With brow erect who scorns this earthy sod,

And styles himself the image of his God;

Arose from rudiments of form and sense,

An embryon point, or microscopic ens!

(Darwin 1803, 1: V, 295-314)

Two centuries later, the song is unchanged. Here, in *Sociobiology: The New Synthesis* (1975) is Edward O Wilson. "Four groups occupy pinnacles high above the others: the colonial invertebrates, the social insects, the nonhuman mammals, and man. Each has basic qualities of social life unique to itself." However, there is a paradox. Although "the sequence just given proceeds from unquestionably more primitive and older forms of life to more advanced and recent ones, the key properties of social existence, including cohesiveness, altruism, and cooperativeness, decline." Yet do not despair. "Man has intensified [the] vertebrate traits while adding unique qualities of his own. In so doing he has achieved an extraordinary degree of cooperation with little or no sacrifice of personal survival and reproduction. Exactly how he alone has been able to cross to this fourth pinnacle, reversing the downward trend of social evolution in general, is the culminating mystery of all biology" (Wilson 1975: 382).

Progress thrives. And yet, there is a paradox. If you look at professional discussions of biology in today's journals – *American Naturalist* or *Evolution* – there is nary a mention of progress. This caution goes back to Darwin himself, who years before the *Origin* appeared warned himself (not entirely successfully) never to use the terms "higher" or "lower" in scientific discussions (Browne 1995). What is going on here? My philosophical background gave me the answer. Biological progress – monad to man – is a metaphor drawn from social progress – savages to Englishmen (Bury 1920). Erasmus Darwin is explicit about this. The idea of organic progressive evolution "is analogous to

the improving excellence observable in every part of the creation; such as the progressive increase of the wisdom and happiness of its inhabitants" (Darwin 1794-1796, 2: 247– 2). His grandson was hardly less of an enthusiast, writing towards the end of his life to a correspondent: "The more civilised so-called Caucasian races have beaten the Turkish hollow in the struggle for existence. Looking to the world at no very distant date, what an endless number of the lower races will have been eliminated by the higher civilised races throughout the world" (Darwin to William Graham July 3, 1881, letter 13230, Darwin Correspondence Project, Letter no. DCP-LETT-13230, accessed on 12 November 2018, http://www.darwinproject.ac.uk/DCP-LETT-13230). The metaphors of science import absolute values.

Three hypotheses

My *Taking Darwin Seriously*, written perhaps significantly just as I was starting into what proved a decade-long study of progress (1986), has as subtitle *A Naturalistic Approach to Philosophy*. By this I meant that I was going to bring the natural world, the world of science, to bear on philosophical problems, in this particular case using Darwinian theory to argue for moral non-realism. What we have seen called the "debunking theory." Likewise, in my approach to the history of ideas, I was a naturalist. As the scientist throws up hypotheses and tests them against the empirical world, so I was going to throw up hypotheses and test them against the world of the scientist through history. The first hypothesis was not mine. For someone who is suspicious of metaphor, there is an obvious answer to the initial enthusiasm for progress and the more recent drawing back. In the early stages of a theory, like evolution taken generally, one expects to find all sorts of cultural values driving the theorizing. It was natural for people to swing from thinking in terms of societal progress – it was after all the eighteenth century, the Enlightenment – to interpret, in terms of biological progress, the growing number of suggestive biological facts, like strange human-like animals from Africa and the remarkable similarities that anatomists discovered between very different species. It was the underlying theme of a very popular, pre-Darwinian, evolutionary tome, the *Vestiges of the Natural History of Creation* (first published in 1844). This added passage to the fifth edition makes the point explicitly.

> A progression resembling development may be traced in human nature, both in the individual and in large groups of men... Now all of this is in conformity with what we have seen of the progress of organic creation. It seems but the minute hand of a watch, of which the hour hand is the transition from species to species. Knowing what we do of that latter transition, the possibility of a decided and general retrogression of the highest species towards a meaner type is scarce admissible, but a forward movement seems anything but unlikely. (Chambers 1846: 400-402)

Let us call this or these – ideas like progress -- cultural or non-epistemic values. Epistemic values are the values of good, objective science – predictability, consistency, perhaps simplicity and falsifiability, and so forth. What is argued by conservative philosophers of science – the late Ernan McMullin (1983) was a notable example – is that, although in the early stages non-epistemic values prevail, over time the epistemic values become more and more important and powerful, and they simply expel the non-epistemic values. Darwinian biology supposedly is a paradigm case. The relativism of natural selection and the randomness of new variation are epistemically very powerful, but they expel the non-epistemic value of progress. The fact that there are outliers like Edward O. Wilson, who insist still on bringing progress into their science, is only to be expected. It should not go unnoted that Wilson's work was highly controversial and major reasons for this were suspicions that he was committed to such views as the superior status of men over women and gentiles over Jews. Not to mention whites over blacks, which is just what one would expect from someone like Wilson who grew up in the Deep South. (I should say that I think these charges quite unwarranted and that was a significant theme of my book on sociobiology (Ruse 1979b).)

For McMullin, epistemic values expel non-epistemic values. Showing my social constructivist yearnings – also a neo-Kantian conviction that knowledge is shaped by what we think as much as by what we discover –I had an alternative hypothesis. I argued that, today, right-thinking intellectuals are very dubious about societal progress – two world wars, the Bomb, global warming, AIDS, you name it. Who could believe in social progress today and hence who would want to use the metaphor and think in terms of biological progress today? This explains why the journal *Evolution* carries no discussions of progress. The cultural values are still there, it is just that they have changed! And the fact that you still have someone like Wilson around, pushing biological progress, is (for me) almost to be expected. He has not stopped doing good science. He just doesn't share the values of the majority, just as some people don't think that affirmative action is a good idea. They can be responsible people. It is just that they draw or hold different conclusions.

I went to the published material, primary and secondary. I visited the archives and dug into them. I found all sorts of unexpected tidbits about people's private lives that I just knew had to be relevant. My most exciting find was that the turn-of-the-nineteenth-twentieth century evolutionist E. Ray Lankester could only get an erection in the company of prostitutes. (He thought his all-male public school early sexual experiences had perverted him for life, turning from the pure to the polluted.) Goodness, did I ever work that into his claims that we are now degenerating rather than progressing (Lankester 1880)! Rather more significantly, I confirmed that what is exciting about science is that you might be quite wrong, and find another unknown hypothesis truly holds. I found that with progress (Ruse 1996). Wilson is far from exceptional. I went around with a tape recorder and found that every active evolutionist I interviewed firmly believed in biological progress – even Steve Gould, who was notorious for denying publicly that there could be such a thing. However, all these good scientists realized that parading cultural values in their science was antithetical to their would-be roles as professional scientists. To be

"real" scientists like physicists, they had to be strictly epistemic. They had to be like the physicists. So, they pursued – pursue – a two-fold strategy. In their professional articles, there is no progress. But then in their books and their op ed pieces and in their presidential addresses, it is progress all the way. With room to jiggle. Ernst Haeckel in the nineteenth century used to put Asians way down below negroes even. Then he had a couple of Japanese graduate students and the next edition of his book suddenly saw Asians up there with Italians! Not Germans, but you cannot have everything in one step (Richards 2008).

A successful naturalistic approach to a philosophical problem, about science and values. Three hypotheses: epistemic values expel non-epistemic (cultural) values; cultural values persist in science, it is just that the values themselves change; external cultural values are kicked out of science but for the reason that internal cultural values be satisfied. Two hypotheses, the first and second, knocked down. One, the third, still standing, This was my big contribution to the history of ideas – a philosophically informed history of evolutionary biology. I was true to my philosophical background in arguing that epistemic values do count for good science, and I was true to my historical background in arguing that it was the non-epistemic value of being regarded as a professional scientist that drove the process. No doubt reflecting my Christian childhood – although it could be early Latin classes (*Gallia est omnis divisa in partes tres*) –I divided the history into three. For the first hundred or so years, up to the *Origin*, evolutionary biology was a *pseudo-science*, driven by the cultural value of progress. Then, after Darwin, until genetics was fully incorporated into the theory – around 1930 – it was more a *popular* science. It wasn't only fueled by cultural values but progress was firmly part of the story, and its real home was in literature and popular essays and the like. After 1930, we have a *professional* science, although still a popular science – some like Gould (and Wilson) move from one to the other and back again. The key point is that the move to professional science was fueled by the urge to be professional rather than a decline in enthusiasm for a cultural value, namely progress. So yes, the philosophers were right in arguing for the objectivity of science. So yes, the historians were right in arguing that science is shaped by human concerns and values (see Ruse 2013a for a summary)

DARWINISM AS RELIGION

I should say that generally this view of the history of Darwinism has been well received. Expectedly, my stern critic – he who did not feel able to respond to my fiftieth-birthday-celebrations invitation – did not at all like it. Sneeringly, he remarked that it reminded him of Comte's three stages of development – religion, metaphysics, positivism. I confess I had not thought of this, but rather like it. I am not a Comtian, but he was not always wrong. That said, he was often wrong, and talk of Comte leads me to my more recent work. To rival and replace Christianity, Comte tried to provide and promote a kind of secular religion. I thought that daft then and I think it daft now. However, talk of rival secular religions did lead me in new directions. When I argued for the debunking argument, I was trying to provide an alternative

world picture to Christianity – be it Creationism or any other form. At the same time, I was trying hard to avoid making my own new secular religion. Having had one headmaster in this life, I am damned if I want another in the next. I still feel that way. The whole point of arguing for no metaethical foundations was that I was going the route of philosophy and not religion.

However, I did not convince my Creationist friend Duane T. Gish. He argued that, to rival Christianity, we Darwinians are simply pushing a form of secular humanism. We are all in the same business. The difference is that we are blind to what we are doing – or hypocrites. By about 1990, when I was in the middle of researching and writing my progress book, I began to think Gish might have a case. An awful lot of people were using progress as a foundation for ethics. Morally, what we should do is strive to mount the greasy pole. Those at the top are those with most worth – humans over warthogs! Moreover, sometimes those who argued this way even recognized what they were about and proudly proclaimed the fact. Herbert Spencer was one. Edward O Wilson is another. He is (as we have seen) for progress. "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). He is also (as we have seen) for an evolutionary foundation to ethics. Where he and I differ, for all that we wrote a couple of papers together, is that whereas I use evolution to do an end run around foundations, he uses evolution to supply the foundations of substantive ethics. And this, it struck me, was to show commitment to a form of Darwinian religious humanism.

There are major problems about defining religion, but all are agreed that, while there might be borderline cases, the notion does make sense. The Catholic Church is a religion. The Florida State University Philosophy Department is not – even though our chair does sometimes act a bit like the Pope. (The dean thinks he is God Almighty.) My approach to this issue has been based on the Providence-progress dichotomy. I argue that fundamental to Christianity is the belief that ultimately all is in the hands of the Creator. Without His help, we are nothing. The words of the great hymn writer, Isaac Watts (1707), tell all.

> When I survey the wondrous cross
> On which the Prince of glory died,
> My richest gain I count but loss,
> And pour contempt on all my pride.

The metaphysical basis of Darwinism as religion is that of progress. We – organisms – strive to improve ourselves, and we do this without outside aid. Even if you believe in God, He is not part of this. The job is ours and ours alone. We can and must do it ourselves. Note that I am talking now about Darwinism as religion, not Darwinism as professional science. I had argued that, for whatever reasons, Darwinism as professional science had expelled thoughts of progress.

So concerned was I that Darwinian theory as science not be confused with Darwinism as religion, I wrote a book on just this topic, defending the integrity of the science (Ruse 2006).

I have explored the theme of Darwinism-as-religion through three books. First, I focused on the notion of millennialism – end times (Ruse 2005). I argued that Creationists (at this point I didn't get into Christianity generally) are premillennialists, thinking that God will return and that our job is to get ready for this. We cannot improve things, but we can get onside with God and try to convert others to our – the right – position. Darwinians are postmillennialists, thinking that God will only return after we have got things ready for Him, so our job is to prepare the way, by improving things. In 1808 that strange visionary William Blake, as part of a long work on Milton (probably begun in 1804), published the poem (that we now call) *Jerusalem*. Referring to Jesus' supposed visit to England and to the grim aspects of the Industrial Revolution, it urges us to action.

> And did those feet in ancient time
> Walk upon England's mountains green:
> And was the holy Lamb of God,
> On England's pleasant pastures seen!
>
> And did the Countenance Divine,
> Shine forth upon our clouded hills?
> And was Jerusalem builded here,
> Among these dark Satanic Mills?
>
> Bring me my Bow of burning gold;
> Bring me my Arrows of desire:
> Bring me my Spear: O clouds unfold!
> Bring me my Chariot of fire!
>
> I will not cease from Mental Fight,
> Nor shall my Sword sleep in my hand:
> Till we have built Jerusalem,
> In England's green & pleasant Land

This poem, turned into a hymn by being set to the music of Hubert Parry, is always sung at the closing of the annual conference of the British Labor Party. Obviously, most members of the Labor Party are not practicing Christians, and neither are most Darwinians in this business either. But you can get the idea. Secular postmillennialism.

Ten years later I returned to the problem (Ruse 2017a). I was on sabbatical at an Afrikaans University (Stellenbosch) in South Africa and, within hours of my arrival, I realized I could not work on the project I intended because the library simply didn't have the needed holdings. I had to rethink. The obvious solution was to work on something where I could get all

the needed material online. I had long been interested in science and literature – I am a huge fan of Victorian fiction and poetry – and so it was obvious that I should work on Darwinism and literature. Within seconds I could get a poem by Emily Dickinson or a novel by Thomas Hardy. You cannot (should not) just write a survey, so my connecting theme was Darwinism as religion – listing aspects of religion, like creation, status of humans, sex, sin, salvation, and so forth, and working through them as found in literature. Simply, I found huge evidence for my thesis. Take this enterprising poem by a young woman, Constance Naden. It is entitled *Natural selection*, but it is really about Darwin's secondary mechanism, sexual selection, involving a struggle for mates. If this isn't giving you an insight into the Darwinian take on sexuality as much as the story of David and Bathsheba gives you an insight into the Jewish/Christian take on sexuality, I don't know what would. Ultimately, none of us are really that clever. We are driven by forces over which we don't have much control. Reason and common sense don't have much say in these things.

I HAD found out a gift for my fair,
I had found where the cave men were laid:
Skulls, femur and pelvis were there,
And spears that of silex they made.

But he ne'er could be true, she averred,
Who would dig up an ancestor's grave—
And I loved her the more when I heard
Such foolish regard for the cave.

My shelves they are furnished with stones,
All sorted and labelled with care;
And a splendid collection of bones,
Each one of them ancient and rare;

One would think she might like to retire
To my study— she calls it a "hole"!
Not a fossil I heard her admire
But I begged it, or borrowed, or stole.

But there comes an idealess lad,
With a strut and a stare and a smirk;
And I watch, scientific, though sad,
The Law of Selection at work.

Of Science he had not a trace,
He seeks not the How and the Why,
But he sings with an amateur's grace,
And he dances much better than I.

And we know the more dandified males
By dance and by song win their wives—
'Tis a law that with *avis* prevails,
And ever in *Homo* survives.

Shall I rage as they whirl in the valse?

Shall I sneer as they carol and coo?

Ah no! for since Chloe is false

I'm certain that Darwin is true.

(Naden 1999: 207-208)

Recently, I have returned to the theme of Darwinism as religion (Ruse 2018). Although born in England at the beginning of the Second Word War, it was always the Great War – the First World War – that haunted my generation. The crazy, shell-shocked old men wandering the parks; the single women (often our schoolteachers) whose boyfriends had died on the front; the pictures in the parlor of long-dead teenagers, looking so proud in their new uniforms; the powerful literature especially the poetry; and so much more. The Armistice at the 11th hour of the 11th day of the 11th month, 1918. I determined to write a book to mark the hundredth anniversary, comparing Christianity and Darwinism on war. Two very different religious world pictures. For Christians, we are tainted with original sin, and so war is always bad, always inevitable, never to cease on this planet. For Darwinians, war had to be good in some sense since it led to humans, but now it is outdated and we can and must strive to bring it to an end. Neither based purely on fact. Both indeed owing much to St Augustine with his gloomy take on human nature. But very different interpretations, fitting entirely with the Providence/progress dichotomy. Darwinism – meaning Darwinian theory infused by hopes of progress – is a rival religion to Christianity. No wonder it is so controversial a topic.

MEANING

So, finally, I come to the present. *A Meaning to Life* (2019) reflects the journey that I started long ago, when I was a "Junior Young Friend." It is divided into four chapters. The first deals with the impact of Darwinism on our thinking about life's meaning. At the center is the Scientific Revolution, the move from the organic model or root metaphor to the machine model or root metaphor, and how Darwin solved the problem of final cause. The message however is that this came with a cost. Darwin's theory did not destroy Christianity, but it raised the possibility that, even if God exists, He is indifferent to our fate. Not just rather mean to us, as is the God of Job, but uncaring. Thomas Hardy, raised a good Anglican, saw this very clearly. Here is his sonnet *Hap*, from 1866.

IF but some vengeful god would call to me
From up the sky, and laugh: "Thou suffering thing,
Know that thy sorrow is my ecstasy,
That thy love's loss is my hate's profiting!"
Then would I bear, and clench myself, and die,
Steeled by the sense of ire unmerited;
Half- eased, too, that a Powerfuller than I
Had willed and meted me the tears I shed.
But not so. How arrives it joy lies slain,
And why unblooms the best hope ever sown?
— Crass Casualty obstructs the sun and rain,
And dicing Time for gladness casts a moan….
These purblind Doomsters had as readily strown
Blisses about my pilgrimage as pain.
(Hardy 1994: 5)

This sets up the challenge and the next three chapters offer different solutions. First comes the Christian response. God exists, God is loving, we are His favored creation, meaning comes through the possibility of eternal salvation. "We need to be sustained in a belief in the ultimate resilience of the good; we need to live in the light of hope. Such faith and hope, like the love that inspires both, is not established within the domain of scientifically determinate knowledge, but there is good reason to believe it is available to us through cultivating the disciplines of spirituality" (Cottingham 2003: 104). So why not take this path? Here my non-belief kicks in. Recently I wrote (yet another!) book where I took up exclusively the topic of atheism, and I drew heavily on it in my distancing myself from the Christian option on meaning (Ruse 2015). First, the venerable problem of evil. I discussed this in my last essay, arguing that in respects Darwinian theory is quite helpful to the Christian. To the claim that evil is a consequence of free will, I showed that in respects Darwinism insists on human freedom, in a way not available to (or needed by) an inanimate object like a rock. To the claim that the best of all possible worlds necessarily contains suffering, I pointed out that Richard Dawkins (1983), of all people, has said that natural selection is the only natural way to get design-like effects and so suffering is part of the package deal.

Perhaps so, but I still find the Dostoevsky objection, in the *Brothers Karamazov*, definitive. Ivan asks his brother a question.

"Tell me yourself, I challenge your answer. Imagine that you are creating a fabric of human destiny with the object of making men happy in the end, giving them peace and rest at last, but that it was essential and inevitable to torture to death only one tiny creature – that baby beating its breast with its fist, for instance – and to found that

> edifice on its unavenged tears, would you consent to be the architect on those conditions? Tell me, and tell the truth."
>
> "No, I wouldn't consent," said Alyosha softly. (Dostoevsky 2003)

The free will of Adolf Hitler and Heinrich Himmler and the rest of that sorry crew simply does not outweigh the deaths of Anne Frank, of Sophie Scholl, and of Dietrich Bonhöffer.

Next there is the problem of different faiths. Had I been born a Jew, I would not accept Jesus as my savior, and the same is true had I been born a Muslim. Had I been born a Buddhist I would not have had any God at all. And had I been born a Californian, a Pagan, I would probably worship the Earth. At least, that is what I found when I wrote my book on the Gaia hypothesis, that the Earth is an organism (Ruse 2013b).

> Hear the earth sing
> of her own loveliness
> her hillock lands, her valleys
> her furrows well-watered
> her untamed wild places
> She arises in you
> as you in her
> Your voice becomes her voice
> Sing!
> (Starhawk 1990: 86)

Why Christianity over the others? You could say that in a sense, we all worship the same unknown. The Quaker in me responds to this. But it isn't really adequate. Either Jesus is the son of God, or he is not. Take your choice, but you cannot take both, neither can you refuse both.

Finally, for me, the ultimate refutation. I find Christianity an unhappy synthesis of Greek thought with the emphasis on a being like the Platonic Form of the Good – eternal, unchanging – and of the Jewish God who is a person, who walked in the garden in the cool of the evening and who, in the New Testament, was the father who cared about his prodigal son and also about the jealous son who remained at home. I just don't think the two can be brought together. The very attempt leads to some horrendous implications. Thus Anselm: "For when thou beholdest us in our wretchedness, we experience the effect of compassion, but thou dost not experience the feeling" (Anselm 1903, 13). Thus Aquinas: "To sorrow, therefore, over the misery of others does not belong to God" (Aquinas 1952, I: 21, 3). No thanks to such a God.

The second option is to go the route of Darwinism as religion. Although secular, meaning is given in striving upwards and trying to help and better humankind. I find this unacceptable simply because I do not think that evolution is progressive in the required sort of way. It is true that there have been valiant efforts, starting with Darwin, to show that natural selection can yield progress. The most popular way is through what today are known as "arms races," where lines compete against each other, and improvement occurs – the prey gets faster, the predator gets faster. Eventually it is thought that this relative improvement cashes out as absolute improvement, as intelligence emerges and finally full-fledged humans. Thus, Darwin in the third edition of the *Origin*.

> If we look at the differentiation and specialisation of the several organs of each being when adult (and this will include the advancement of the brain for intellectual purposes) as the best standard of highness of organisation, natural selection clearly leads towards highness; for all physiologists admit that the specialisation of organs, inasmuch as they perform in this state their functions better, is an advantage to each being; and hence the accumulation of variations tending towards specialisation is within the scope of natural selection. (Darwin 1861: 134)

Natural selection cannot guarantee anything, but everything is probably going to be just fine. The great success of capitalism and British industry leads the way. Today, Richard Dawkins stands in this tradition. "Directionalist common sense surely wins on the very long time scale: once there was only blue-green slime and now there are sharp-eyed metazoa" (Dawkins and Krebs 1979: 508). Having embraced computer technology early and enthusiastically, Dawkins slides easily into noting that, more and more, today's arms races rely on computer technology rather than brute power (Dawkins 1986). In the animal world, Dawkins finds this translated into ever-bigger and more efficient brains. Oh, what a surprise! We humans are the winners!

The trouble of course, as Jack Sepkoski pointed out, humans are not always the winners. Intelligence has costs, like bigger brains needing lots of protein, almost always the dead bodies of fellow animals. Sometimes these are just not there or available. Overall, many evolutionists are lukewarm towards the claims made in the name of arms races (Ruse 1996). There is undoubtedly some empirical evidence for them. For instance, as predators get better at boring into shells, the owners of those shells get better at producing ever stronger and thicker protection. However, the evidence is not uniformly positive. Fossils, for instance, do not show unambiguously that prey and predators have become ever faster. All in all, arms races are very frail reeds on which to make claims about absolute improvement, and to go on to argue that moral and like claims about meaning can be given objective (metaethical) justification by Darwinian evolutionary theory is simply not true.

DARWINIAN EXISTENTIALISM

What is left? This is the topic of my fourth and final chapter. Taking a leaf out of Jean Paul Sartre (1948), I endorse what I call a form of Darwinian existentialism.

> Atheistic existentialism, of which I am a representative, declares… that if God does not exist there is at least one being whose existence comes before its essence, a being which exists before it can be defined by any conception of it. That being is man or, as Heidegger has it, the human reality. What do we mean by saying that existence precedes essence? We mean that man first of all exists, encounters himself, surges up in the world – and defines himself afterwards. If man as the existentialist sees him is not definable, it is because to begin with he is nothing. He will not be anything until later, and then he will be what he makes of himself. Thus, there is no human nature, because there is no God to have a conception of it. Man simply is. (Sartre 1948: 27-28)

I differ from Sartre in thinking that there is a human nature, as given to us by Darwinian evolution. You might say that this makes me no existentialist, but I am not sure that Sartre, the quintessential Frenchman, truly thought there was no human nature. No matter. I do think we have a human nature and we – not something from outside – have to make meaning from there. I argue that above all else humans are social animals and from this meaning emerges. You may say that truly we are killer apes, but general opinion is that this view from the 1950s is badly outdated (Ruse 2018). It owed more to the morbid imagination of St Augustine than to reality. Although conflict occurs and should not be trivialized, essentially it is sociality that is the true mark of the human. Even in war, the buddy system is all important.

I see this sociality translating out in three ways. First, *family*. "Human beings are not made to live alone. They are born into a family and in a family they grow, eventually entering society through their activity. From birth, therefore, they are immersed in traditions which give them not only a language and a cultural formation but also a range of truths in which they believe almost instinctively" (John Paul II 1998: 31). Second, *friendship*.

> Friendship is either itself a virtue or connected with virtue; and next it is a thing most necessary for life, since no one would choose to live without friends though he should have all the other good things in the world: and, in fact, men who are rich or possessed of authority and influence are thought to have special need of friends: for where is the use of such prosperity if there be taken away the doing of kindnesses of which friends are the most usual and most commendable objects? Or how can it be kept or preserved without friends? Because the greater it is so much the more slippery and hazardous: in poverty

> moreover and all other adversities men think friends to be their only refuge. (Aristotle, *Nicomachean Ethics*, Barnes 1984)

Third the world of *culture* and of the intellect, all of which is so intimately connected with and given meaning through other human beings. The life of the mind has direct adaptive value in helping us to explore and manipulate our environment. This life is intensely social, whether as a direct adaptation or as a spinoff. Think of science. If anything is a group activity it is science. Darwin's theory was made of elements he got from others and as soon as he felt able he was passing it on to others. It is the same in other fields. It's all about relationships, both in content and form. Think Shakespeare. Romeo and Juliet and their doomed love, set against the terrible relationship between their parent clans. Think music. I love opera and none more than the Mozart & da Ponte opera, *Così Fan Tutte*. It tells the tale of a cynical old man – a philosopher! – who teaches a silly young pair of lovers a lesson in the shallow nature of so much of our emotions and relationships. The men place a bet on their girlfriends' fidelity and, before long, find themselves disguised and courting the girl of the other. Egged on Despina the maid – who is happy to mess up their love lives for a coin or two from the philosopher, Don Alfonso – you can guess what happens. Silly? Profound? Immoral? Cynical? It has been called all these things. As with Shakespeare, it is deeply social, both in content and in the fact that it is done for the entertainment of others. Art too. After years of condescension, an exhibition at the Art Institute in Chicago won me over completely to the conviction that Roy Lichtenstein, with his pop art, was one of the most important American artists of the twentieth century. It is all about relationships. "I love you too Jeff, but." We think all the time as social beings. And never more than in, what at first seems so solitary, the life of the mind. If you are reading this, you make my point!

That is human nature and that is the secret to a full and meaningful life. Forget false promises and hopes. Live for what you have and use it and extend it and enjoy it to the full. I hope my intellectual autobiography has shown you I have striven and still strive to make this philosophy a reality.

> For that life is dear,
>
> The lust after life
>
> Clings to it fast.
>
> For the sake of life,
>
> For that life is fair,
>
> The lover of life
>
> Flings it broadcast.

The lover of life knows his labour divine,

And therein is at peace.

The lust after life craves a touch and a sign

That the life shall increase.

The lust after life in the chills of its lust

Claims a passport of death.

The lover of life sees the flame in our dust

And a gift in our breath.

(Meredith 1870: 182–183)

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