



Design

There is no standard Christian position on the role of reason in religion. Catholics think that “natural theology” has a significant and full role to play: “Illumined by faith, reason is set free from the fragility and limitations deriving from the disobedience of sin and finds the strength required to rise to the knowledge of the Trine God” (John Paul II 1998, 43). While there are Protestants who accept and even welcome natural theology, the “neo-orthodox” (like Barth) think not only that it fails but also that it is pernicious in its effects and promises. A true faith needs no proofs and indeed is destroyed by such proofs. Our radical freedom to accept God’s gift of grace would be compromised were it possible to give logical proof of Christian claims.

Obviously we must discuss the interaction of Darwinism and natural theology, but equally obviously the Christian’s own stand will have to be considered in any overall assessment of these issues.

The Teleological Argument

Arguments for the existence of God lie at the heart of natural theology. Some such arguments touch but slightly or not at all on the Darwinian system. The “teleological argument” or the “argument from design,” however, is right on the front line. Many people, Richard Dawkins most vocally recently, claim that here above all Darwinism and Christianity come into conflict, precluding belief in both systems. By going back in history, let us see why this opinion might be held.

Notwithstanding Hume's criticisms – pointing to conclusions that he himself was not prepared to accept in full – the argument from design flourished right through to the nineteenth century. Interestingly, its most important base was Protestant Britain rather than Catholic Europe, mainly because – given the nonprofessional status of British science as opposed to that found on the continent, in France especially – British scientists had to work particularly hard to justify their activities to the outside (nonscientific) world (Appel 1987). Burnishing the argument from design was a perfect antidote to the worry that studying nature might put undue pressure on tenets of revealed religion. Its most famous formulation occurs in *Natural Theology*, by Archdeacon William Paley in 1802:

I know of no better method of introducing so large a subject, than that of comparing a single thing with a single thing; an eye, for example, with a telescope. As far as the examination of the instrument goes, there is precisely the same proof that the eye was made for vision, as there is that the telescope was made for assisting it. They are made upon the same principles; both being adjusted to the laws by which the transmission and refraction of rays of light are regulated. (Paley [1802] 1819, 1)

A watch demands a watchmaker. Hence an eye demands an eye maker – or rather, an eye designer. Call this “God”: the God of the Christian, moreover, since the eye and other organic characteristics attest to a designer of great skill and power.

The popularity of this argument makes understandable one of the most important points about Darwinism: the author of the *Origin* accepted completely and utterly the initial premise of the teleological argument, namely that organisms are designlike (Ruse 1979a). Indeed, this is the problem to which natural selection speaks: the explanation of adaptations like the eye and the hand. It is here that Darwinism distinguishes itself from almost all other evolutionary theories. Darwin argued that, thanks to natural selection, we will have the formation or evolution of features like the hand and the eye, those very organs of which the natural theologians made so much. Darwin regarded the features as adaptations, as did the theologians. They were not just idle bodily parts or appendages, but things with a purpose or end or function. This is the reason that the *Origin* incorporates all of the teleological language of the theologians. If

you like, put it this way: the metaphor of design is just as much a feature of Darwin's *Origin* as it is of Paley's *Natural Theology*.

Does Darwin Exclude Real Design?

Now what does all of this imply? Some people think that Darwin spelt the end to the argument from design. Before Darwin, one had no choice but to accept a Designer. After Darwin, the Designer was finished and the way was open for atheism.

Paley's argument is made with passionate sincerity and is informed by the best biological scholarship of his day, but it is wrong, gloriously and utterly wrong. The analogy between the telescope and the eye, between watch and living organism, is false. All appearances to the contrary, the only watchmaker in nature is the blind forces of physics, albeit deployed in a very special way. A true watchmaker has foresight: he designs his cogs and springs, and plans their interconnections, with a future purpose in his mind's eye. Natural selection, the blind, unconscious, automatic process which Darwin discovered, and which we now know is the explanation for the existence and apparently purposeful form of all life, has no purpose in mind. It has no mind and no mind's eye. It does not plan for the future. It has no vision, no foresight, no sight at all. If it can be said to play the role of watchmaker in nature, it is the *blind* watchmaker. (Dawkins 1986, 5)

Because he did not know about evolution through selection, Hume hesitated before the final leap into nonbelief. Now such a leap is nigh obliterated: “Although atheism might have been *logically* tenable before Darwin, Darwin made it possible to be an intellectually fulfilled atheist” (Dawkins 1986, 6).

But surely the Christian has a counter to this? One might argue that although selection makes redundant – closes off the option of – an intervening and designing God, it still leaves open the option of God's designing at a distance. Perhaps God put His design into action through the medium of unbroken law. Indeed, as Baden Powell argued in the years just before the *Origin*, perhaps a God who works this way is superior to a God who has to intervene personally and miraculously: “Precisely in proportion as a fabric manufactured by machinery affords a higher proof of intellect than one produced by hand; so a world evoked by a long train of orderly disposed physical causes is a higher proof of Supreme intelligence than one in whose structure we can trace no indications of such progressive action” (Powell 1855, 272).

Dawkins will have none of this. He regards Darwinism not simply as proving that the argument from design does not work, but as proving that atheism is true. Natural selection explains adaptive complexity. God simply cannot do this, because apart from anything else, one would then have the burden of explaining God.

Any God capable of intelligently designing something as complex as the DNA/protein replicating machine must have been at least as complex and organized as that machine itself. Far more so if we suppose him *additionally* capable of such advanced functions as listening to prayers and forgiving sins. To explain the origin of the DNA/protein machine by invoking a supernatural Designer is to explain precisely nothing, for it leaves unexplained the urging of the Designer. (Dawkins 1986, 141)

Dawkins is slipping in a strange premise, that complexity needs greater complexity to explain it. The whole point about reductionism is that one explains the complex in terms of the simple. But no matter. We can give Dawkins some of what he wants, but we are not obligated to give all. It is true that Darwinism shows that the need for an intervening designer is redundant. More than this. If you accept Darwinism, you reject the intervener. However, if you insist that the design demands a designer, then it is still open to you to accept that God did the job. More likely, if you accept God already, it is still very much open to you to think of God as great inasmuch as He has created this wonderful world. "What believers who have furnished such proofs [for the existence of God] have wanted to do is to give their "belief" an intellectual analysis and foundation, although they themselves would never have come to believe as a result of such proofs" (Wittgenstein 1980, 86). Even the neo-orthodox might go this far. There is nothing yet which stops the Darwinian from being a Christian.

But are we not being a little unfair to Dawkins at this point, missing the real force of his argument? His basic objection is that whether you think that God designed through miraculous intervention or through the medium of natural selection, you are still leaving unexplained the very existence and nature of this wonderful God who is supposedly capable of doing all of this. Which point of course is true and in the opinion of many is a good reason for nonbelief. Ultimately, assuming the existence of God really solves and explains nothing. Yet this surely is a problem for Christian belief generally and not something brought on by Darwinism speci-

cally. There are of course various responses one can make to the problem, which may or may not be judged adequate. For instance, traditionally, God is thought to exist necessarily, so the question of His beginnings is ruled irrelevant. To which critics object that the idea of necessary existence is a conceptual confusion. At which point we can pull back gracefully and let the disputants argue among themselves. Their premises have nothing to do with evolutionary theory. Dawkins has not shown that being a Darwinian denies, or even exacerbates the difficulties of, Christian commitment. In the spirit of Baden Powell, one might think that God's magnificence is confirmed as one realizes that He does so much with so simple a mechanism as natural selection.

Is Selection Adequate?

Switch things around for a moment. We have been assuming that selection can do the job. But what if it cannot? What if there are aspects of the living world that in some sense, even in principle, Darwinism simply cannot explain? Does anyone truly think that Darwinians will show the appropriate modesty, retiring from the field and letting others move in? Surely not! Such aspects will be played down or denied or treated as unreal problems in the first place. And does this not mean that we then stand in danger of ignoring or denying or belittling aspects of the living world that, for the Christian, ought to be very important indeed? Because of our Darwinism – confident that it can, that it must, explain all – might we not turn away from precisely those things which theologically are the most significant?

This is the fear which underlies the thinking of biochemist Michael J. Behe, author of *Darwin's Black Box: The Biochemical Challenge to Evolution* (1996), a man who believes that he has made a breakthrough where "[t]he result is so unambiguous and so significant that it must be ranked as one of the greatest achievements in the history of science. The discovery rivals those of Newton and Einstein, Lavoisier and Schrödinger, Pasteur and Darwin" (232–3). Perhaps so, but moving to the arguments, let us see why he gives us reason to fear Darwinism. Behe's key notion is something he labels "irreducible complexity." Some organic phenomena are just so complex that they cannot have been produced by blind unguided law. That is just a fact of nature.

By *irreducibly complex* I mean a single system composed of several well-matched, interacting parts that contribute to the basic function, wherein the removal of any one of the parts causes the system to effectively cease functioning. An irreducibly complex system cannot be produced directly (that is, by continuously improving the initial function, which continues to work by the same mechanism) by slight, successive modifications of a precursor system, because any precursor to an irreducibly complex system that is missing a part is by definition nonfunctional. (39)

Behe adds, surely truly, that an irreducibly complex biological system has to be a major challenge to a Darwinian mode of explanation. Darwinism insists on gradualism, and this is precisely what is not on offer. "Since natural selection can only choose systems that are already working, then if a biological system cannot be produced gradually it would have to arise as an integrated unit, in one fell swoop, for natural selection to having anything to act on" (39). Which essentially means that natural selection is redundant.

As a matter of fact, Behe does not want to rule out a natural origin for all irreducible complexities, but we learn that as the complexity rises, the likelihood of getting things by any indirect natural route "drops precipitously" (40). As a physical example of an irreducibly complex system, Behe instances a mousetrap: something with five parts (base, spring, hammer, and so forth), any one of which is individually necessary for the mousetrap's functioning. It could not have come into being naturally in one step, and it could not have come about gradually. Any part-piece would not function properly alone, and any part missing would mean failure of the whole. It had to be designed and made by a conscious being – a fact which is true also of organisms. "The purposeful arrangement of parts" (193) is the name of the game.

Irreducible Complexity Challenged

Now what are we to say about this claim? Obviously, if Behe's overall argument is well taken, then Darwinism is in trouble and will surely strike back at Christianity. But are we to accept Behe? As it happens, Behe's choice of a mousetrap as an exemplar of intelligent design is somewhat unfortunate. All sorts of parts can be eliminated or twisted and adapted to other ends. There is no need to use a base, for example. You can just

attach the units directly to the floor, a move which at once reduces the trap's components from five to four. But even if the mousetrap were a terrific example, it would hardly make Behe's point. No evolutionist ever claimed that all of the parts of a functioning organic feature had to be in place at once, nor did any evolutionist ever claim that a part used now for one end must always have had that function. Ends get changed, and something that was introduced for one purpose might well take on another purpose. It might be only later that the new purpose gets incorporated in such a way that it becomes essential.

Against the mousetrap, take the example of an arched bridge, with stones meeting in the middle and with no supporting cement. If you tried to build it from scratch, the two sides would keep collapsing as you started to move the higher stones into the middle. What you must do first is build an understructure, placing the stones on it. Then, when the stones are pressing against one another in the middle, you can remove the understructure. It is now no longer needed; although, if you were not aware that it had once been there you might think that it is a miracle that the bridge ever was built. Intermediate positions were impossible. Likewise in evolution: some pathway (say) exists; a set of parts sits idle on the pathway; then these parts link up; and finally the old pathway is declared redundant and removed by selection. Only the new pathway exists, although without the old one the new one would have been impossible.

Let us move now from analogies and pretend examples (though my own example is not so pretend if origin-of-life researchers are right about the second stage of the Oparin-Haldane hypothesis [Cairns-Smith 1985]). We find that Behe's case for the impossibility of a small-step natural origin of biological complexity has been trampled upon contemptuously by the scientists working in the field. It is not just that they disagree, but that they think his grasp of the pertinent science is weak and his knowledge of the literature curiously (although conveniently) outdated. Take that staple of the body's biochemistry, the process by which energy from food is converted into a form which can be used by the cells. Rightly does a standard textbook refer to this vital organic system, the so-called Krebs cycle, as something which "undergoes a very complicated series of reactions" (Holum 1987, 408). This process, which occurs in the cell parts known as mitochondria, involves the production of adenosine triphosphate (ATP), a complex molecule which is energy-rich and which is degraded by the body as needed (say, in muscle action) into another

less rich molecule, adenosine diphosphate (ADP). The Krebs cycle re-makes ATP from other energy sources – an adult human male needs nearly 200 kg a day – and by any measure, the cycle is enormously involved and intricate. For a start, nearly a dozen enzymes (substances which facilitate chemical processes) are required, as one subprocess leads to another.

Yet the cycle did not come out of nowhere. It was cobbled together out of other cellular processes which do other things. It was a “bricolage.” Each one of the bits and pieces of the cycle exists for other purposes and has been co-opted for the new end. The scientists who have made this connection could not have made a stronger case against Behe’s notion of irreducible complexity had they had him in mind from the first. In fact, they set up the problem virtually in Behe’s terms: “The Krebs cycle has been frequently quoted as a key problem in the evolution of living cells, hard to explain by Darwin’s natural selection: How could natural selection explain the building of a complicated structure in toto, when the intermediate stages have no obvious fitness functionality?” (Meléndez-Hervia et al. 1996, 302). What these workers do not offer is a Behe-type answer. First, they brush away a false lead. Could it be that we have something like the evolution of the mammalian eye? Primitive existent eyes in other organisms suggest that selection can and does work on proto-models (as it were), refining features which have the same function. Probably not, for there is no evidence of anything like this. But then we are put on a more promising track:

In the Krebs cycle problem the intermediary stages were also useful, but for different purposes, and, therefore, its complete design was a very clear case of opportunism. The building of the eye was really a creative process in order to make a new thing specifically, but the Krebs cycle was built through the process that Jacob (1977) called “evolution by molecular tinkering,” stating that evolution does not produce novelties from scratch: It works on what already exists. The most novel result of our analysis is seeing how, with minimal new material, evolution created the most important pathway of metabolism, achieving the best chemically possible design. In this case, a chemical engineer who was looking for the best design of the process could not have found a better design than the cycle which works in living cells. (302)

Behe’s knowledge of evolution is suspect. His knowledge of his own area of science is suspect. And the same is true when he moves into

philosophy and theology. The common complaint about evolutionary theory is that it cannot be properly checked. The critics claim that it is too flabby to yield testable predictions. It is in some sense unfalsifiable (Popper 1974). But whether or not this is true (I do not happen to think it is), such a complaint must certainly be made of Behe’s theory. How can you ever tell when irreducible complexity can be explained by evolution and when it must be explained by something else (or Something Else)? Behe himself admits that there is no sharp line, and he gives no real answers to this problem. Newton and Einstein and those other great scientists to whom he likens himself produced work which did lead to quantification and to measurement and prediction. As it stands, Behe’s ideas can easily be protected against any counterevidence. You can explain some phenomenon through evolution? Then either the phenomenon was not irreducibly complex, or it was not complex enough. You cannot explain some phenomenon through evolution? Then either the phenomenon is too complex for an evolutionary explanation, or you will later find such an explanation. Heads I win, tails you lose.

More than this, there is a major unsolved problem about the way or ways in which intelligent design is supposed to act. Is it something built into nature from the first? If so, where is the quarrel with the Darwinian, for presumably laws had to effect the design, and why should not the designer work through natural selection? If the design is not in nature from the first, then was it added all at once to a primitive cell or does it occur piecemeal as needed? Without absolutely committing himself, Behe floats the idea that the design occurred all at once, asking us to suppose “that nearly four billion years ago the designer made the first cell, already containing all of the irreducibly complex biochemical systems” discussed in his book “and many others” (227). But if everything was done all at once, long ago, then how can it be (since the irreducible complexity of the higher animals and plants was not then needed) that it did not degrade or get eliminated, by random mutation or drift or selection weeding out the unneeded? If piecemeal, then whether or not it was put into play through a straight miracle or through a special kind of guided law, why do we have the evidence of Darwinian evolution (as for the Krebs cycle)? Why does the designer throw around such misleading clues? We are back with the logic of Philip Gosse, author of *Onphalos*. This is not very plausible, as science or as religion. (For much more on Behe’s science, see Miller 1999.)

Intelligent Design

Qua scientist, Behe is careful not to identify his designer with the Christian God, and deliberately I have been saying nothing about this Being that Behe invokes. After all, our question is not whether one can be a Christian but whether being a Darwinian stops you from being a Christian. But if Behe's argument actually points away from the Christian God, this should be acknowledged, for then Darwinism is surely a more attractive alternative for the Christian. And this may indeed be the case. Let us suppose that a Behe-type designer does exist and is at work producing irreducibly complex organisms. Who then is responsible when things go wrong? We have all of the problems we have seen before. What about mal-mutations causing such awful things as Tay-Sachs disease and sickle-cell anemia? Is this just the fault of no one, or do we blame evolution? Why does the designer not step in here? It (let us not assume its sex) is pretty clever and could surely fix just one bad move. The whole point is that it can produce the irreducibly complex. So why does it allow – perhaps even produce – the not-very-complex-but-absolutely-dreadful? Behe says that raising this problem is raising the problem of evil – How can an all-powerful all-good God allow pain? And this is so. But labeling the problem does not make it go away.

There are some standard arguments addressing the problem of evil; we shall be starting that discussion in the next chapter. Here, although Behe himself is in as much trouble in the realm of philosophical theology as he was in the realm of biological science, let us see how others try to haul him from the hole into which he has pitched himself. The mathematician-philosopher William Dembski (1998a,b) recognizes that one must find some way to separate such things as mal-mutations from such things as highly complex functioning entities, else the whole new anti-Darwinian revival of the design argument (what its proponents call “intelligent design”) comes crashing down. To this end, Dembski proposes something he calls an “explanatory filter.” The essence of this idea is that you always explain things at the most economical or plausible level of understanding, and you only go on down to another level if the first level fails. So, faced with some (biological) phenomenon, you explain if you can through regular unbroken law. If that works, then the cheering can begin. Your job is finished. If it does not work, then you go to the next level: chance. If that works or is plausible, again your work is over. But if it does not work, then you must go on to another level: design.

The nice point is that there is no need to attribute to God all of the messy, unpleasant aspects of organic life. The beak of the finch on the Galápagos islands is clearly something produced by natural selection, and so, with such a law-based explanation, your job is finished. A mal-mutation is a random phenomenon – it is not something predictable within the context of Mendelian genetics – and so it is chance. It is inexplicable by law, but not such as to require further understanding. The origin of life cannot be explained by law, and it was certainly not chance. Here a design hypothesis is appropriate. And see how everything is kept clean and separate. You cannot blame God for mal-mutations. These are pure chance. “To attribute an event to design is to say that it cannot plausibly be referred to either law or chance. In characterizing design as the set-theoretic complement of the disjunction law-or-chance, one therefore guarantees that these three modes of explanation will be mutually exclusive and exhaustive” (Dembski 1998a, 98).

A nice solution, but wrong. At the most charitable, there is a radical confusion between the meanings of “law,” “chance,” and “design.” They are simply not “mutually exclusive and exhaustive” categories in the way that Dembski supposes. Fisher, the greatest evolutionist of this century – and, as arguably the greatest statistician ever, surely one who knew about these things – ran all three together! He believed that mutations come individually by chance, but that collectively they are governed by laws (and undoubtedly are governed by the laws of physics and chemistry in their production) and thus can provide the grist for selection (law) which produces order out of disorder (chance). He cast the whole picture within the confines of his “fundamental theorem of natural selection,” which essentially says that evolution progresses upwards, thus countering the degenerative processes of the Second Law of Thermodynamics. And then, for good measure, he argued that everything was planned by his Anglican God! Remember, we are still living in the sixth day, “probably rather early in the morning” (Fisher 1947, 1001).

Returning to our worry, as soon as one has invoked design, at whatever level, then surely one can and should go back and reexamine attributions of chance (and law, for that matter). “Chance” is not a thing or an objective entity. It is a confession of ignorance. My winning the lottery was a chance event, but this is hardly to say that it was an event outside of law – the laws of physics as the counters tumbled in the drum – and if God can create life, then He is surely up to seeing that I can get a million dollars that I did not earn or merit. So, it could all be part of His design. In short,

Dembski's help is no true help, and Behe is no better off than before. If God is directly responsible for the origin of life, or for the Krebs cycle, then He cannot escape responsibility for mal-mutations.

The sad truth is that Behe is in the same boat as those physicists we dismissed earlier. He has offered us a freshened-up version of the old "God of the gaps" argument for the Deity's existence. A Supreme Being must be invoked to explain those phenomena for which I cannot offer a natural explanation. But such an argument proves only one's own ignorance and inadequacy. It tells us nothing of beings beyond science. In the words of the Christian theologian and martyr Dietrich Bonhoeffer: "We are to find God in what we know, not in what we don't know" (1979, 311).

Mind and Matter

Let us move next to the relationship between mind and matter. Again we find an argument purporting to show the inadequacy of pure Darwinism, and again we have a point where the Darwinian may be tempted to counter in such a way that there is a denial or belittling of something that the Christian can and should take as significant for belief. John Polkinghorne (1994) takes note of the isomorphic relationship between the facts of nature and the beliefs of mind. Snow is white, and we believe that snow is white. This is not very exciting, but this is just the beginning. What really impresses Polkinghorne is the way in which the human mind is able to transcend the vulgar and empirical and to inquire into the deeper mysteries of nature: theoretical physics, higher mathematics, and more. Surely, he argues – and as a theoretical physicist Polkinghorne is certainly qualified to argue here – this ability is proof of a designing, caring Mind which lies behind human intellectual activity. Indeed, a purely natural explanation cannot explain the correspondence between mind and theory and, if it tries, can do so only by undercutting the evidence of God's power and glory.

Confirming the Christian's worst fears – Polkinghorne is also an Anglican priest – the Darwinian does certainly have a ready answer to this kind of argument. Let us first push the answer through to its end, and then ask about its implications for our overriding question. Can a Darwinian be a Christian? Simply, the Darwinian's claim is that the coincidence between mind and matter is indeed no chance, but that there is little need to suppose outside interference. It is just that physics and mathematics are

adaptations forged by natural selection to enable us to survive and reproduce (Ruse 1986a; Bradie 1986). Leaving aside those special cases (discussed in the critique of Plantinga) where selection systematically deceives, the proto-human who realized that falling rocks tend to fall rather than rise up into the air survived and reproduced in a way that his less calculating cousin did not. The proto-human who did not realize that she was getting only two shares for the three she gave out, did less well in life's survival and reproductive stakes than she who was less gullible. There is no magic to science and mathematics. It is all in the genes. If you want to believe that everything adds up to Christian design, then you are free to do so; but there is no compulsion on the Darwinian, in this respect. The Christian should not make too much of what is going on here. "Creatures inveterately wrong in their inductions have a pathetic but praise-worthy tendency to die before reproducing their kind" (Quine 1969, 126).

Polkinghorne has an obvious response. While this counterargument might seem plausible for elementary physics and mathematics, can it possibly be adequate for more advanced areas of the subjects? Can it possibly be the case that evolution has anything to do with our grasping of the fact that space is non-Euclidean or that $e^{\pi i} = -1$? And these today are fairly simple concepts. The biggest mystery here is that Darwinians are so blinded by their theory that they cannot see how limited and limiting it truly is. And just putting things this way, even the hard-line Darwinian has to agree that there does seem to be a major gap. But there are a number of points which bear on the case.

First, no Darwinian is claiming that grasping $e^{\pi i} = -1$ has a direct bearing on survival and reproduction. The point is that mathematical and scientific claims are put together from simple claims in simple steps, and these basic units of knowledge and methodology are rooted in biology. Consider Euclid, for instance. One might plausibly argue that the axiom that shortest distance between two points is a straight line is Darwinian-based, even if one might doubt that the Pythagorean theorem is Darwinian-based. Second, note how mathematics and physics today are both necessarily limited in certain respects. Gödel's theorem shows that there are unprovable claims even in elementary mathematics. Would a Good God of the hands-on variety have left these dangling? If everything is contingent, then such undecidability is almost to be expected. Likewise, Heisenberg's Uncertainty Principle suggests that, even in theory,

there are areas into which we may not go, questions we cannot answer. Again, this is all very surprising given a Good God; but it is to be expected if all science is a contingent outcome of the powers of beings forged by Darwinian evolution. I am not saying that this disproves God – one might think that this strengthens one's belief in a God who designs through evolution – but I am saying that it makes the all-powerful intervening designer less likely.

Third, it is surely open to the Darwinian to argue for some form of Platonism, at least with respect to mathematics. And here we are no worse off than, and perhaps even parallel to, the Christian. Where does the Christian (dissatisfied with the evolutionary proposal) think that mathematics resides? In the Mind of God, presumably. But what precisely does this mean? One supposes that there is a transcendent world, an ultimate reality in which the mathematical propositions in some form hold eternally. This is Plato's world of Forms or Ideas. "The Christian vision places the Forms securely in the Word of God" (Ward 1998, 107). I really do not see why a Darwinian should not hold to the Platonic vision as much as a Christian. The Darwinian already agrees that there is a world of physical reality, which may or may not have an ultimate explanation. Why should the Darwinian not also hold that there is a world of nonphysical reality, which likewise may or may not have an ultimate explanation? And if this world exists, why should not Darwinism open the doors? As Plato himself pointed out, once we are in, then a lot of non-Darwinian hard work will be needed to go from room to room; but that is another matter. As with empirical science, natural selection gives the necessary tools.

Polkinghorne raises a serious question. Darwinians today can hardly pretend that they have a full understanding of how adaptations forged through natural selection have become so powerful as to be able to grasp higher mathematics or quantum mechanics. There is much work to be done – but not by giving up on Darwinism because it is seen as a threat to religious belief. Although, in truth – and now we can return to our main question – need we see in any of this a threat to Christian belief? There is no longer a proof of God's existence, but is the mystery and wonder of higher mathematics any less now than it was before? Puny primate though I may be, I find the beauty and elegance of $e^{\pi i} = -1$ as moving as a Bach cantata, and I suspect for much the same reasons: reasons which reside in abilities given to me by evolution through natural selection.

Darwinism Explaining Christianity

I conclude this chapter by considering an argument which goes the other way. Could it not be that the Darwinian approach to function and design really does prove too powerful for the Christian? Could it not be that Darwinism shows that religion itself is just a part of the adaptive design of human nature, and that once we recognize this it will be seen that religion, including Christianity, falls to the ground?

This is certainly the position of Edward O. Wilson (1978). Wilson does not want to belittle religion in the fashion of Dawkins. He sees it as an important and significant aspect of human culture. But he wants to turn precisely this importance and significance back on itself. For him, religion exists purely by the grace of natural selection. Those organisms which have religion survive and reproduce better than those which do not. Religion gives ethical commandments, which are important for group living. Also, religion confers a kind of group cohesion, something which is a very important element of Wilson's picture of humankind. "A kind of cultural Darwinism . . . operates during the competitions among sects in the evolution of more advanced religions. Those that gain adherents grow; those that cannot, disappear. Consequently religions are like other human institutions in that they evolve in directions that enhance the welfare of the practitioners" (Wilson 1978, 174–5). Although Wilson writes here about cultural evolution, in fact he thinks that religion is ingrained directly into our biology. Thanks to our genes, it is part of our innate nature. "The highest forms of religious practice, when examined more closely, can be seen to confer biological advantage. Above all they congeal identity" (Wilson 1978, 188).

Religious enthusiasm is part of the human condition. We can explain religion. We can never eliminate it. At best, we can promote biology as an alternative secular religion: "The final decisive edge enjoyed by scientific naturalism will come from its capacity to explain traditional religion, its chief competition, as a wholly material phenomenon. Theology is not likely to survive as an independent intellectual discipline" (Wilson 1978, 192).

Explaining Religion Away?

Wilson's writings are rooted as much in his own childhood experiences of fundamentalist Baptism in the American South, as in any knowledge or

study of empirical reality (Ruse 1999). But, taking his position at face value, let us ask about its implications for Christianity. In Wilson's own mind, what is happening is that Darwinism is explaining religion (including Christianity) as a kind of illusion: an illusion which is necessary for efficient survival and reproduction. Once this explanation has been put in place and the illusion exposed, one can see that Christianity has no reflection in reality. In other words, epistemologically one ought to be an atheist. Since Wilson still sees an emotive and social power in religion, he would replace spiritual religion with some kind of secular religion. That secular religion, as it turns out, happens to be Darwinian evolutionism. A Darwinian cannot be a Christian, but a Darwinian should be a Darwinian! We are dealing with a "myth"; but, when all is said and done, "the evolutionary epic is probably the best myth we will ever have" (Wilson 1978, 201).

Wilson's line of argument is hardly new. Karl Marx and Sigmund Freud proposed similar arguments – trying to offer a naturalistic explanation of religion, arguing that once one has this explanation in place, one can see that the belief system is false (Hick 1970). But is the inference in general well taken? And even if it is well taken, what of the specific case of Darwinism and Christianity? At the general level, it is certainly true that sometimes an explanation of why someone holds a belief suggests that, with respect to truth, the belief is not particularly well taken. Consider, for instance, the instance of spiritualism, particularly as it pertained to people's beliefs and practices during the First World War. Many bereaved people turned to spiritualism for comfort. And indeed, they derived such comfort, for they heard or otherwise received messages from the departed. However, all of us would now agree that, even in those cases where no outright fraud was involved, it was unlikely that the dead soldier was in fact speaking to those remaining. People's strong psychological desires to hear something comforting led them to project and receive the desired messages, and so they heard them. Once one offers this explanation, seeing how unreasonable it is to expect that the departed were in fact speaking, the whole spiritualist position collapses.

Yet, not all explanations of why or how we get to believe things are necessarily such as to debunk the veracity of the belief systems. Suppose, for instance, one gives a scientific explanation of sight, showing how it is that someone is able to spot a speeding train bearing down on them. The fact that one can give an explanation – in terms of the eye's physiology and

of light rays and so forth – in no sense demotes or discredits the belief that a speeding train is indeed bearing down (Nozick 1981). If anything, it strengthens the belief. The question we must ask is whether religion is more like the spiritualism case or more like the speeding train case – and it is surely pertinent to note that this is a question which is neither asked nor answered by Wilson. This omission does not mean that Wilson's preferred explanation for religion – spiritualism rather than train – is wrong. But it is to say that some additional argument is needed.

This incompleteness is a general feature of arguments like that of Wilson – as it is, indeed, of those of Marx and Freud before him. They are arguments that, to a certain extent, come after the event rather than before. One becomes convinced that religion, let us say Christianity, is in some sense inadequate or false. Then, one is led to ask exactly why it is that people are led to believe it, and one offers some kind of materialistic or naturalistic argument in response. This response in itself is not sufficient to show that the belief is false; at least, one needs some further information as to why the response itself shows the belief to be false. And this applies to the particular Wilsonian case of Darwinism and Christianity. The missing elements in Wilson's case are crucial. The fact that one has an evolutionary explanation of religion is not in itself enough to dismiss the belief system as illusory or false. More is needed.

It is true that people have proposed arguments suggesting that belief in Christianity is unsound, ridiculous even. There are all sorts of paradoxes which the Christian must face. But whether or not one can defend Christianity against such charges, the charges themselves have not been brought on by Darwinism, which is the nub of this discussion. Take the problem of the Trinity. How can God be three persons in one, at the same time? How can God even be God the Father and God the Son? What was God the Father doing when God the Son was on the Cross, crying out for help? Perhaps one can deal with questions like these. Perhaps not. We have had two thousand years of debate on the issue, and it was a major reason for the split between Western and Eastern Christianity (Pelikan 1971–89). But this is not our problem: Darwinism is irrelevant. In short, Wilson's Darwinism in itself does not prove the inadequacy of Christian belief; rather, his Darwinism shows why one might have a Christian belief, if evolution be true.

Try again. Could one not argue that Darwinism shows that there is something wrong with religion, since Darwinism is indifferent as to the

form of religious belief? It is true that different beings might – and indeed do – evolve different ways of sensing the train's approach. One uses sight, another uses hearing. But the long and the short of it is that one is going to have to sense the train in some fairly reliable sort of way, otherwise one is going to be wiped out. Religion, however, might be effective in achieving group cohesion, even though it takes on very different forms: monotheism, polytheism, animism, and so forth. All of which suggests that, given this range of biologically adequate options, Darwinism is more corrosive of religious belief than one suspected at first.

The problem for the Wilsonian is that one can mount this argument without really bothering too much about evolutionary biology. We know full well that different people do have different religious beliefs. Some are Christians, some are Jews, others are Muslims, and so on. In other words, what we know already is that culture has led to different, sincerely maintained religious convictions. And I hardly need say that there are already those today who think the argument is significant and quite corrosive with regard to Christian belief, or indeed any specific religious belief. I hardly need say also that there are standard replies that can be offered. One can suggest that one belief is better than others. Or one can argue that perhaps there is some common core to all religious belief, and that this is what counts. And note that as with the main argument, these counterarguments have little to do with Darwinism. For all that there are important issues here, Darwinism is not relevant to the case. Christian belief is being judged by other factors.

The conclusion is clear. Christians surely ought to consider seriously the empirical claims that Wilson and fellow thinkers are making about their religion. The theological implications being extracted are another matter. No sound argument has been mounted showing that Darwinism implies atheism. The atheism is being smuggled in, and then given an evolutionary gloss. This is no good reason for giving a negative answer to our title question.