

VIII.A.1 Science Versus Religion

RICHARD DAWKINS

Richard Dawkins (1941–) is professor of biology at Oxford University and the author of several important books, including *The Selfish Gene* (1976), *The Blind Watchmaker* (1986), and *The God Delusion* (2006). He argues that science is a far more defensible process than religion for securing truth. We begin with two short excerpts from *The Blind Watchmaker* and then move on to his general lecture.

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 in his mind's eye. Natural selection, the blind, unconscious automatic processes that 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, or foresight, no sight at all. If it can be said to play the role of watchmaker in nature, it is the blind watchmaker.

DAWKINS, *The Blind Watchmaker*, Norton, 1986, p. 5

Although atheism might have been logically tenable before Darwin, Darwin made it possible to be an intellectually fulfilled atheist.

op. cit., pp. 6–7

IS SCIENCE A RELIGION?

It is fashionable to wax apocalyptic about the threat to humanity posed by the AIDS virus, “mad cow” disease, and many others, but I think a case can be made that *faith* is one of the world’s great evils, comparable to the smallpox virus but harder to eradicate.

Faith, being belief that isn’t based on evidence, is the principle vice of any religion. And who,

looking at Northern Ireland or the Middle East, can be confident that the brain virus of faith is not exceedingly dangerous? One of the stories told to young Muslim suicide bombers is that martyrdom is the quickest way to heaven—and not just heaven but a special part of heaven where they will receive their special reward of 72 virgin brides. It occurs to me that our best hope may be to provide a kind of “spiritual arms control”: send in specially trained theologians to deescalate the going rate in virgins.

Given the dangers of faith—and considering the accomplishments of reason and observation in the activity called science—I find it ironic that, whenever I lecture publicly, there always seems to be someone who comes forward and says, “Of course, your science is just a religion like ours. Fundamentally, science just comes down to faith, doesn’t it?”

Well, science is not religion and it doesn’t just come down to faith. Although it has many of religion’s virtues, it has none of its vices. Science is based upon verifiable evidence. Religious faith not only lacks evidence, its independence from evidence is its pride and joy, shouted from the rooftops. Why else would Christians wax critical of doubting Thomas? The other apostles are held up to us as exemplars of virtue because faith was enough for them. Doubting Thomas, on the other hand, required evidence. Perhaps he should be the patron saint of scientists.

Transcript of a speech delivered to the American Humanist Association, accepting the award of 1996 Humanist of the Year.

One reason I receive the comment about science being a religion is because I believe in the fact of evolution. I even believe in it with passionate conviction. To some, this may superficially look like faith. But the evidence that makes me believe in evolution is not only **overwhelmingly** strong; it is freely available to anyone who takes the trouble to read up on it. Anyone can study the same evidence that I have and presumably come to the same conclusion. But if you have a belief that is based solely on faith, I can't examine your reasons. You can retreat behind the private wall of faith where I can't reach you.

Now in practice, of course, individual scientists do sometimes **slip back into** the vice of faith, and a few may believe so single-mindedly in a favorite theory that they occasionally falsify evidence. However, the fact that this sometimes happens doesn't alter the principle that, when they do so, they do it with shame and not with pride. The method of science is so designed that it usually finds them out in the end.

Science is actually one of the most moral, one of the most honest disciplines around—because science would completely collapse if it weren't for a scrupulous **adherence to** honesty in the reporting of evidence. (As James Randi has pointed out, this is one reason why scientists are so often fooled by paranormal tricksters and why the **debunking** role is better played by professional **conjurers**; scientists just don't anticipate deliberate dishonesty as well.) There are other professions (no need to mention lawyers specifically) in which falsifying evidence or at least twisting it is precisely what people are paid for and **get brownie points** for doing.

Science, then, is free of the main vice of religion, which is faith. But, as I pointed out, science does have some of religion's virtues. Religion may aspire to provide its followers with various benefits—among them explanation, consolation, and **uplift**. Science, too, has something to offer in these areas.

Humans have a great hunger for explanation. It may be one of the main reasons why humanity so universally has religion, since religions do aspire to provide explanations. We

come to our individual consciousness in a mysterious universe and long to understand it. Most religions offer a cosmology and a biology, a theory of life, a theory of origins, and reasons for existence. In doing so, they demonstrate that religion is, in a sense, science; it's just bad science. Don't fall for the argument that religion and science operate on separate dimensions and are concerned with quite separate sorts of questions. Religions have historically always attempted to answer the questions that properly belong to science. Thus religions should not be allowed now to retreat from the ground upon which they have traditionally attempted to fight. They do offer both a cosmology and a biology; however, in both cases it is false.

Consolation is harder for science to provide. Unlike religion, science cannot offer the bereaved a glorious reunion with their loved ones in **the hereafter**. Those wronged on this earth cannot, on a scientific view, anticipate a sweet **comeuppance** for their **tormentors** in a life to come. It could be argued that, if the idea of an afterlife is an illusion (as I believe it is), the consolation it offers is hollow. But that's not necessarily so; a false belief can be just as comforting as a true one, provided the believer never discovers its falsity. But if consolation comes that cheap, science can weigh in with other cheap **palliatives**, such as pain-killing drugs, whose comfort may or may not be illusory, but they do work.

Uplift, however, is where science really comes into its own. All the great religions have a place for **awe**, for **ecstatic transport** at the wonder and beauty of creation. And it's exactly this feeling of spine-shivering, breath-catching awe—almost worship—this flooding of the chest with ecstatic wonder, that modern science can provide. And it does so beyond the wildest dreams of saints and mystics. The fact that the supernatural has no place in our explanations, in our understanding of so much about the universe and life, doesn't diminish the awe. Quite the contrary. The merest glance through a microscope at the brain of an ant or through a telescope at a long-ago galaxy of a billion worlds is enough to render **poky** and **parochial** the very psalms of praise.

Now, as I say, when it is put to me that science or some particular part of science, like evolutionary theory, is just a religion like any other, I usually deny it with **indignation**. But I've begun to wonder whether perhaps that's the wrong tactic. Perhaps the right tactic is to **accept the charge** gratefully and demand equal time for science in religious education classes. And the more I think about it, the more I realize that an excellent **case could be made** for this. So I want to talk a little bit about religious education and the place that science might play in it.

I do feel very strongly about the way children are brought up. I'm not entirely familiar with the way things are in the United States, and what I say may have more relevance to the United Kingdom, where there is state-obliged, legally enforced religious instruction for all children. That's unconstitutional in the United States, but I presume that children are nevertheless given religious instruction in whatever particular religion their parents deem suitable.

Which brings me to my point about mental child abuse. In a 1995 issue of the *Independent*, one of London's leading newspapers, there was a photograph of a rather sweet and touching scene. It was Christmas time, and the picture showed three children dressed up as the three wise men for a **nativity play**. The accompanying story described one child as a Muslim, one as a Hindu, and one as a Christian. The supposedly sweet and touching point of the story was that they were all taking part in this nativity play.

What is not sweet and touching is that these children were all four years old. How can you possibly describe a child of four as a Muslim or a Christian or a Hindu or a Jew? Would you talk about a four-year-old economic monetarist? Would you talk about a four-year-old neo-isolationist or a four-year-old liberal Republican? There are opinions about the cosmos and the world that children, once grown, will presumably be in a position to evaluate for themselves. Religion is the one field in our culture about which it is absolutely accepted, without question—without even noticing how bizarre it is—that parents have a total and absolute say in what their children are going to be,

how their children are going to be raised, what opinions their children are going to have about the cosmos, about life, about existence. Do you see what I mean about mental child abuse?

Looking now at the various things that religious education might be expected to accomplish, one of its aims could be to encourage children to reflect upon the deep questions of existence, to invite them to rise above the **humdrum** preoccupations of ordinary life and think sub *specie aeternitatis*.

Science can offer a vision of life and the universe which, as I've already remarked, for humbling poetic inspiration far outclasses any of the mutually contradictory faiths and disappointingly recent traditions of the world's religions.

For example, how could any child in a religious education class fail to be inspired if we could get across to them some **inkling** of the age of the universe? Suppose that, at the moment of Christ's death, the news of it had started traveling at the maximum possible speed around the universe outwards from the earth? How far would the terrible **tidings** have traveled by now? Following the theory of special relativity, the answer is that the news could not, under any circumstances whatever, have reached more than one-fiftieth of the way across one galaxy—not one-thousandth of the way to our nearest neighboring galaxy in the 100-million-galaxy strong universe. The universe at large couldn't possibly be anything other than indifferent to Christ, his birth, his passion, and his death. Even such **momentous** news as the origin of life on Earth could have traveled only across our little local **cluster** of galaxies. Yet so ancient was that event on our earthly time-scale that, if you span its age with your open arms, the whole of human history, the whole of human culture, would fall in the dust from your fingertip at a single stroke of a nail **file**.

The argument from design, an important part of the history of religion, wouldn't be ignored in my religious education classes, needless to say. The children would look at the **spell-binding** wonders of the living kingdoms and would consider Darwinism alongside the creationist alternatives and make up their own

minds. I think the children would have no difficulty in making up their minds the right way if presented with the evidence. What worries me is not the question of equal time but that, as far as I can see, children in the United Kingdom and the United States are essentially given *no* time with evolution yet are taught creationism (whether at school, in church, or at home).

It would also be interesting to teach more than one theory of creation. The dominant one in this culture happens to be the Jewish creation myth, which is taken over from the Babylonian creation myth. There are, of course, lots and lots of others, and perhaps they should all be given equal time (except that wouldn't leave much time for studying anything else). I understand that there are Hindus who believe that the world was created in a cosmic **butter churn** and Nigerian peoples who believe that the world was created by God from the excrement of ants. Surely these stories have as much right to equal time as the Judeo-Christian myth of Adam and Eve.

So much for Genesis; now let's move on to the prophets. Halley's Comet will return without fail in the year 2062. Biblical or Delphic prophecies don't begin to aspire to such accuracy; astrologers and Nostradamians dare not commit themselves to factual prognostications but, rather, disguise their charlatanry in a **smokescreen of vagueness**. When comets have appeared in the past, they've often been taken as **portents** of disaster. Astrology has played an important part in various religious traditions, including Hinduism. The three wise men I mentioned earlier were said to have been led to the cradle of Jesus by a star. We might ask the children by what physical route do they imagine the alleged **stellar** influence on human affairs could travel.

Incidentally, there was a shocking program on the BBC radio around Christmas 1995 featuring an astronomer, a bishop, and a journalist who were sent off on an assignment to retrace the steps of the three wise men. Well, you could understand the participation of the bishop and the journalist (who happened to be a religious writer), but the astronomer was a supposedly respectable astronomy writer,

and yet she went along with this! All along the route, she talked about the portents of when Saturn and Jupiter were in the **ascendant** up Uranus or whatever it was. She doesn't actually believe in astrology, but one of the problems is that our culture has been taught to become tolerant of it, even vaguely amused by it—so much so that even scientific people who don't believe in astrology sort of think it's a bit of harmless fun. I take astrology very seriously indeed: I think it's deeply **pernicious** because it undermines rationality, and I should like to see campaigns against it.

When the religious education class turns to ethics, I don't think science actually has a lot to say, and I would replace it with rational moral philosophy. Do the children think there are absolute standards of right and wrong? And if so, where do they come from? Can you make up good working principles of right and wrong, like "do as you would be done by" and "the greatest good for the greatest number" (whatever that is supposed to mean)? It's a rewarding question, whatever your personal morality, to ask as an evolutionist where morals come from; by what route has the human brain gained its tendency to have ethics and morals, a feeling of right and wrong?

Should we value human life above all other life? Is there a **rigid** wall to be built around the species *Homo sapiens*, or should we talk about whether there are other species which are entitled to our humanistic sympathies? Should we, for example, follow the right-to-life lobby, which is wholly preoccupied with *human* life, and value the life of a human fetus with the faculties of a worm over the life of a thinking and feeling chimpanzee? What is the basis of this fence we erect around *Homo sapiens*—even around a small piece of **fetal** tissue? (Not a very sound evolutionary idea when you think about it.) When, in our evolutionary descent from our common ancestor with chimpanzees, did the fence suddenly rear itself up?

Well, moving on, then, from morals to last things, to eschatology, we know from the second law of thermodynamics that all complexity, all life, all laughter, all sorrow, is **hell-bent** on **leveling itself out** into cold nothingness in the

end. They—and we—can never be more than temporary, local **buckings** of the great universal slide into the **abyss** of uniformity.

We know that the universe is expanding and will probably expand forever, although it's possible it may **contract** again. We know that, whatever happens to the universe, the sun will **engulf** the earth in about 60 million centuries from now.

Time itself began at a certain moment, and time may end at a certain moment—or it may not. Time may come locally to an end in miniature crunches called black holes. The laws of the universe seem to be true all over the universe. Why is this? Might the laws change in these crunches? To be really speculative, time could begin again with new laws of physics, new physical constants. And it has even been suggested that there could be many universes, each one isolated so completely that, for it, the others don't exist. Then again, there might be a Darwinian selection among universes.

So science could give a good account of itself in religious education. But it wouldn't be enough. I believe that some familiarity with the King James versions of the Bible is important for anyone wanting to understand the allusions that appear in English literature. Together with Book of Common Prayer, the Bible gets 58 pages in the *Oxford Dictionary of Quotations*. Only Shakespeare has more. I do think that not having any kind of biblical education is unfortunate if children want to

read English literature and understand the provenance of phrases like “through a glass darkly,” “all flesh is as grass,” “the race is not to the swift,” “crying in the wilderness,” “reaping the whirlwind,” “amid the alien corn,” “Eyeless in Gaza,” “Job's comforters,” and “the widow's mite.”

I want to return now to the charge that science is just a faith. The more extreme version of this charge—and one that I often encounter as both a scientist and a rationalist—is an accusation of **zealotry** and bigotry in scientists themselves as great as that found in religious people. Sometimes there may be a little bit of justice in this accusation; but as zealous bigots, we scientists are mere **amateurs at** the game. We're content to *argue* with those who disagree with us. We don't kill them.

But I would want to deny even the lesser charge of purely verbal zealotry. There is a very, very important difference between feeling strongly, even passionately, about something because we have thought about and examined the evidence for it on the one hand, and feeling strongly about something because it has been internally revealed to us, or internally revealed to somebody else in history and subsequently **hallowed** by tradition. There's all the difference in the world between a belief that one is prepared to defend by quoting evidence and logic and a belief that is supported by nothing more than tradition, authority, or revelation.

VIII.A.2 Nonoverlapping Magisteria

STEPHEN JAY GOULD

Stephen Jay Gould (1941–2002) was a leading figure in paleontology, evolutionary biology, and the history of science, and was the author of several important books, both popular and scholarly, on these subjects. He taught at Harvard University and also worked at the