The Edge of Reason?

Science and Religion in Modern Society

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Foreword

Can peace be declared?

Mary Midgley

Is there really a sudden new Cold War between science and religion today? Have we somehow lost the very sensible moves towards finding a more rational relation between the two concerns that were made during the last century? Puzzling about this, we might note that many recent converts to fundamentalist Christianity explain their move by saying that they see it as the only alternative to something they call 'Scientific Atheism' or 'Darwinism'. Fundamentalists themselves have, of course, long dealt in this simple, tribal exclusiveness. What has changed today is that they have been lucky enough to find opponents who will confirm this exciting story – opponents who agree that only two extreme positions are open here, and who are willing to give that view a lot of publicity. These new warriors oblige them by flatly opposing 'religion' – religion as such, not just fundamentalism – to something equally monolithic called 'science' or 'Darwinism'. They flatly reject the suggestion that these two concerns, if properly conducted, work in many ways and need not clash because they have different functions – because (as the great evolutionist Dobzhansky put it) science deals in facts and religion in meaning. Such thoughts are now denounced as the reason to the scientific cause. Thus Richard Dawkins writes :

> I do have one thing in common with the Creationists. Like me, but unlike the [Neville] Chamberlain school, they will have no truck with NOMA and its separate magisteria [which was Stephen Jay Gould's proposed formula for separating the two roles.] . . . The teachings of `moderate' religion, though not extremist in themselves, are an open invitation to extremism.[i]

If a number of distinguished scholars were now to denounce Politics, simply as such, on this principle, saying that moderate forms of

politics must be avoided because they constitute an open invitation to more extreme ones, their stance might cause some surprise. After all, many things, such as alcohol, are agreed to be harmful in excess but harmless, even beneficial, in moderation. Extremism itself is known to be a distinct and objectionable choice. Yet the current Cold War approach has been accepted without comment by many as rational and proper. Salvoes continue to be loosed in it on both sides. In contrast, the essays in this book suggest that we should stand right back from it and try to understand the confusions that underlie it.

As these authors point out, the normal sense of both terms involved here is a wide one, containing many elements. In order to show them as conflicting, both words must be taken in narrow and peculiar senses. This is usually done by bringing the supposed contestants together in the world of facts, and the chances of history have favoured that move. The tendency of Protestant thought to interpreting the Bible literally, rather than in the symbolic and allegorical way recommended by the early Church Fathers and by much of the Christian tradition, made the shift possible. And the unlucky decision by some American Evangelicals in the late 19th-century to enforce a literal interpretation did indeed ensure a conflict with science.

Thus, campaigning Christian fundamentalism emerged as the guiding myth of a particular population – evangelical Americans, especially the poor and especially those in country districts – who have used it to nourish their self-confidence and have built it into a range of political projects that cause others a good deal of alarm. So it is not surprising if many people today assume, on hearing the word 'religion', that it means primarily this one dangerous thing, fundamentalism, both American and Islamic. (The Islamic kind has, of course, its own political roots, but unless these are understood it too appears as a mysterious, inexplicable menace.)

As these authors point out, however, religion is something much larger than this. It is actually a world-wide phenomenon. Anthropologists think that, in one form or another, it may be a human universal. We cannot grasp its range by reducing it to a single local model, however striking and familiar that model may be. At any point in that range, we need to ask what a particular religion means to the people who

actually practise it, and this cannot be done by assuming that all the sentences involved in it should be understood as factual propositions in the natural sciences. When, therefore, Richard Dawkins declares, 'I shall suggest that the existence of God is a scientific hypothesis like any other' (*The God Delusion*, p. 51) he surely displays a startling lack of interest in the workings of language. Sentences claiming that something exists are not even a specially important part of religion. As John Hedley Brooke observes in this book, 'Religions are not just about beliefs, warrantable or not. They are about practices, ranging from prayer and meditation to formalised prescriptions for group and individual behaviour. Christianity has arguably been the exception in being so creedal'.

It surely has, and that obsession with the formulas of the creeds flowed much more from the dissensions of its early days than from anything central to it. A religion is actually a way of life – a distinctive way of living, feeling, acting, thinking, above all perhaps a distinctive way of perceiving and imagining the world as a whole. The speech-patterns it uses are not failed attempts to state scientific facts but responses to how the world as a whole is seen to work. They express background visions, in whose light all particular facts are seen and interpreted. For a believer, God is not an extra item who might or might not be added to the world. He is immanent in it, a feature of its whole nature.

Of course our current culture too has its own visions, which we need to understand much better than we do. But an anthropologist's business, as Simon Coleman points out, is not to defend any one vision against another but to understand them both. From the anthropological angle, what now passes as warfare between science and religion may perhaps be better seen as a clash between the current, exceptionally individualistic outlook of the West and the more communal, less materialistic world-views of other cultures and other times. And in general our first business, when we encounter world-views that seem strange, is not to fight them but to understand them. Indeed, till we do understand them our fighting hardly makes much sense. It is only playing soldiers. So, as Coleman says, 'we need an anthropology, not only of Creationism but of Dawkinsism'.

Robert Layton expands this point by comparing American creationism with a creation-myth of the Australian aborigines, noting that both play important social roles, so that neither can be refuted simply by invoking empirical facts – still less by exchanging insults. And Hiroko Kawanami movingly describes from the inside how this kind of vision can work. She explains the role of Buddhism in Burma, where it operates in the teeth of brutal oppression as the conscience of the nation, constantly directing effort towards the common good. Without any concept of God, the Buddhist origin-myth (fully understood to be a myth) serves to stress the centrality of inner conflict in human life and the consequent disastrousness of egoism, which stops us becoming aware of each other's troubles. That is why serious Buddhists often need to take part in politics not, as is sometimes thought, to aim simply at their own salvation. She remarks, 'It seems to me that, in the post-Enlightenment era, Western rationalists have increasingly privatised religion, and humans have become an end in themselves . . . The weight placed on rationality and science has not improved the human condition, but only enhanced belief in the omnipotence of human reasoning'.

This anthropological approach raises the interesting question, 'Just which science is it that is believed to have finally exploded religion?' Anthropology does not seem anxious to claim that role and, for related reasons (as John Brooke explains), neither does History. The dynamite is, of course, now widely assumed to have come from evolutionary biology, which does succeed in demolishing crude literal interpretations of the Book of Genesis. But that is a very small feat in relation to religion as a whole. And, very interestingly, here we have David Sloan Wilson, himself a distinguished evolutionary biologist and incidentally an atheist, arguing that evolutionary biology itself, properly understood, does not point that way at all, because it suggests that religion is adaptive. The ultra-Darwinist, individualistic strategy that Dawkins relies on to disprove this is an unduly one-sided, and indeed outdated, approach to evolution.

The problem is, of course, how religion can have spread so widely if it is not adaptive in some way. Scholars have usually explained this

by suggesting that it promotes survival because it is bond-forming. Dawkins rejects this social explanation because it suggests group-selection – the differential survival of harmonious societies, rather than the one-to-one competition which he takes to be the only real possibility. Besides this, however, he remarks that cultural developments like religion are so large that they need an explanation of their own. This he provides, not (as the rest of us might) by looking at human motivation and surrounding circumstances, but by introducing a quite separate, parallel and metaphysically astonishing process of evolution where immaterial cultural entities ('selfish memes' or genes of culture) compete to infect our minds like parasites and are selected purely for their own advantage, not for that of their victims. Thus a 'human universal' can easily infest our species without doing any kind of good to its members (As Wilson points out, this pattern is closely comparable to demonic possession). Dawkins has since extended the story more widely, but religion was one of his first examples of memetics and its case was surely prominent in his decision to formulate such an idea at all.[ii] He has repeatedly developed similar analogies, for instance in an article called 'Is God A Computer Virus?'.[iii]

Wilson contests both the central doctrines involved here. The veto on group-selection as an explanation of adaptation is, he says, no longer respected by biologists as it was in the 'Age of Individualism' (it is surely no coincidence that it was also the Age of Thatcherism in the UK). Plenty of cases have been found where the harmony of groups clearly has been important in adaptation. And in particular, when we come to a species like our own where communication is highly developed, explanation by factors that promote harmony becomes centrally important. Here, there is no need to wait for the slow spread of a genetic mutation, instead, 'a new cultural mutation can rapidly spread to everyone in the group', deeply affecting its survival.

Has religion, however, in fact played this adaptive role, so that its elements may form 'part of the "social psychology" of the human group-organism'? As Wilson points out, this question calls for empirical legwork, of the kind that is usually expected in the social sciences, about the good or harm actually done – something that Dawkins

never attempts. As a first step, Wilson outlines some careful and systematic surveys recently undertaken to compare certain aspects of the lives of believers with non-believers. Of course, as he says, these figures raise as many questions as they answer, but they surely do make a difficulty about Dawkins's sweeping denunciation of the whole province. Enquiries show that 'on average, religious believers are more prosocial than non-believers, feel better about themselves, use their time more constructively, and engage in long-term planning rather than gratifying their impulsive desires. On a moment-by-moment basis they report being more happy, active, sociable, involved and excited.'

Michael Shermer too, cites some statistics which seem relevant. He also is himself an atheist and is seriously worried by many aspects of American religion. Yet, as he notes,

> Religious conservatives donate 30 per cent more money than liberals (even when controlled for income) give more blood and log more volunteer hours. In general, religious people are four times more generous than secularists to all charities, 10per cent more munificent to non-religious charities, and 57 per cent more likely to help a homeless person. Those raised in intact and religious families are more charitable than those who are not . . . [And so on] . . . Before we imagine a world without religion . . . we need to consider what social institutions will be substituted for all the good that religion does.

Clearly more work is needed here, and Wilson is right to call on evolutionary biologists to play their part in it. As he remarks, 'In retrospect it is absurd that evolutionists have spent much more time evaluating the major evolutionary hypotheses for guppy spots than for the elements of religion'. Of course, all attempts to understand our own species do present some special difficulties, but they also have one important advantage which is not available in discussing guppies – namely, they let us do some of the understanding from the inside. They allow us to deal in qualities as well as quantities. We can ask, for instance, just what *sort* of bond-forming is it that particular attitudes make possible? Just which *kind* of happiness is being increased or diminished?

Here we need to note, too, the huge variety among religions. Ian Reader draws attention to this, citing the fable about the six blind men none of whom could see the whole elephant. As Reader remarks, 'Religion is just part of the human realm, as is, for instance, politics. . .. [It] is not an entity that can be isolated as a "germ", held to blame for all manner of ills and then eradicated . . . Religion is morally neutral, reflecting those who shape it; it is neither intrinsically "good" nor "bad" '. The particular form that it takes is up to those who use it.

Science too takes many forms and there is one more department of it which is surely relevant here, namely cosmology. It too, however, is apparently unwilling at present to provide the anti-religious ammunition which the Cold War requires. As David Wilkinson reports, it is now having to look again at questions about cosmic design. 'While the legacy of Darwin demolished the design argument in the minds of biologists, the last four decades of cosmology have seen a revival of the language of design . . . We have discovered that the laws and circumstances of the universe need to be just right in order to give us a Universe of structure and intelligent life'. A whole series of coincidences have been discovered without which, not only would life be impossible but there could be no solid, ordered Universe at all. How has the strange degree of fine-tuning that gives us our present Universe come about? How is it possible for us to be here?

Some scientists now explain this by the 'anthropic' assumption that there is an infinite number of varied universes around us, and the only reason why we find ourselves in this ordered one is because we wouldn't be able to exist in any of the others. This is all right provided that you don't feel the need to reach for your Occam's Razor – that you don't find the enormous, otherwise unsupported invention of all these mysterious universes somewhat extravagant and suspect that perhaps, like memes, they are a product of biased metaphysics rather than physics.

Other cosmologists, like Paul Davies,[iv] think it is more natural to accept that appearances are not deceptive – that our Universe does indeed have some immanent purposive principle working in it to produce the order and activity that we see. This suggestion is not, of course, meant as a proof of the existence of God. What it does is to remove an obstacle to all thinking of this kind – to question the

recently-held dogma, actually derived from Cartesian philosophy rather than from science, that there cannot possibly be any purpose outside human life. It leaves space again for religious thinking and more widely, for the awe and reverence with which scientists, as well as other people, have long regarded the physical world – a veneration which is, indeed, surely a necessary part of their reason for doing science. Dawkins calls this attitude 'pantheistic reverence' but insists that, all the same, it has nothing to do with religion. This is surely rather an odd use of language.

What emerges from all these useful forays beyond Cold War thinking? The central point is surely that the Cold Warriors have done us a great service. They have drawn attention to a desperately muddled corner of our conceptual map and their exaggerations show just how badly it needs reshaping. We have long lived with the vague image of two warring provinces, one of which will always provide us with a refuge if the other becomes inconvenient. Our choice between these provinces may largely depend on our upbringing and circumstances – being a known believer can be almost as bad for one's career in Britain now as being a known atheist is in the US. But the trouble lies deeper, in the mistaken opposition itself. We should not need to choose between knives and forks, between walking and breathing. As Einstein said, religion without science is lame, science without religion is blind. Human life is complex, requiring all sorts of approaches and all sorts of tools. We need to be aware of the whole of it.

References

i R. Dawkins, *The God Delusion* (London: Bantam Press, 2006) pp. 67–68 and 306.

ii R. Dawkins, *The Selfish Gene* (Oxford: Oxford University Press, 1976) pp. 205–207.

iii R. Dawkins (1993) 'Is God a computer virus?' in *New Statesman and Society* (18 December 1992–1 January 1993), p. 42.

iv P. Davies, *The Goldilocks Enigma: Why Is The Universe Just Right For Life?* (New York: Penguin Books, 2006).

Introduction

Alex Bentley

Not long ago, I received a group-email from a fellow evolutionary anthropologist, with the subject, 'Read it and weep'. He was forwarding a 2005 report showing that half the population of Britain, a nation with Darwin on its 10-pound note, does not accept the theory of evolution for the origin and development of life.[1] Over a third, in fact, believes in creationism or intelligent design.

As an evolutionary anthropologist, I certainly believe that the Earth is just over 4.5 billion years old, and that we and our culture itself evolve. I worry that some politicians do not believe in evolution. Yet there still seems an academic smugness in implying that our views – which we call 'science' – are more important and any less variable than what much of the population thinks – which we label 'beliefs'. I could see why columnist Michael Bywater[2] would wonder, 'What harm is there in their . . . refusal to play the post-Enlightenment rational game? . . . It doesn't affect the workings of the universe that you are right and I am wrong.'

Does it matter what people believe, and if so, what should they believe?

This is an extremely difficult question. Many of us would favour *freedom* of belief, but we don't want anyone *using* their belief to destroy other beliefs. 'If science is attempting to squash belief,' my colleague says, 'then that is certainly wrong. If belief is attempting to squash science, then that is equally wrong.'

As it happens, however, quite a few on each side would be perfectly happy either to squash religion with science, or to squash science with religion. As Bywater adds, 'the problem arises when they band together to withhold facts from others . . . use their irrationality to harm others . . . or divert resources from more reputable uses.' It certainly is this banding together, as it appears to either side, that intensifies the polemic, but the degree of banding depends on the society. In the US,

quite a few (including politicians) are outspoken about their religion. Indeed, the country arguably was founded by people rather insistent about their religion, perhaps leading literally into a cultural 'founder effect' all the way to the present day. In the UK, however, where reserve is culturally more dominant, many follow a philosophy similar to that of country singer Willie Nelson, in that 'your religion is for you, and is best kept close to your heart'.[3] In fact, discovering whether a British person is religious can be a bit like asking whether they have a personality disorder – many would never tell you on first meeting. This may be why the British media were clearly surprised by the prevalence of belief in the 2005 survey. Public perception has it that the UK is a more secular society than the US, yet the UK functions according to many Christian traditions, with its Christian monarchy, a financial year that renews at Easter, chapels integral to colleges at top universities and a longstanding blasphemy law only just repealed in 2008.

It doesn't help that what we see in the public sphere – pundits on television, headlines and media caricatures – often tells us little about the realities underlying society. And many of us rely on our personal experience – we prefer what we practice ourselves – rather than really investigate the complexity of how individual beliefs relate to collective actions. Fear of the Other is clearly a motivator: which is scarier, religious fanaticism or human genetic engineering? The answer depends; not just on our own personal views, as we like to think, but also – perhaps primarily – on what people around us think.[4] Fifty years ago, psychologists such as Solomon Asch and Stanley Milgram demonstrated through controlled experiments how some people will believe other people to the point of administering near-lethal electric shocks to someone, or abandoning their own judgement on questions with obvious answers.

To varying degrees, doing as the Romans do works whether we are scientists, priests, agnostics or zealots. How many Methodists think Methodism is dangerous? How many atheists or agnostics think religion could be important to someone, or benefit a community? How many scientists consider the societal implications of their own results? Objectivity may be easy when reading about exotic religious

groups in endangered forests and obscure doomsday cults, but much more difficult in our own. Furthermore, in many of the world's cultures past and present, there is no recognizable religious institution to argue about; religion can be so deeply entwined that it is simply the way people live and how they view their world.[5]

For over a century, cultural anthropologists have peeked into the crannies of the world, seeking exotic cultures and religions. So what makes religious people in our own backyard any different? Perhaps it is because some of them knock on our doors, instead of us knocking on theirs. Perhaps it is a matter of scale and dominance, since a village in highland New Guinea does not have the power or Western arrogance to attempt world domination of thought. Anthropologist Robert Layton grapples with this by asking himself how he could study the cosmology of Australian Aborigines objectively on one hand, but then want to dispute his friend's personal Creationism on the other. Experiencing Creationism in the US, anthropologist Simon Coleman also puts aside what he believes to be factually right or wrong and considers what social purposes Creationism serves for people.

Is religion bad for society?

So what do we *really* know about society and religion? The world of religion is far vaster than our modern experience, stretching back tens (maybe hundreds) of thousands of years across countless societies. Against a very specific few of these – modern monotheistic religions – we have charges of violence, creationism taught in schools[6] and powerful religious interest groups that have shaped politics, laws and even tried to ban movies and books like *Life of Brian* and *Harry Potter*. Arguments that religion is bad for modern society, motivating malicious foreign and domestic events, sell tremendously well in the UK and the US, where many cultural and political roots lie in Christian (but before that, Pagan or animistic) traditions. With books such as *Unweaving the Rainbow, The God Delusion* and *God is not Great*, British authors are doing for English atheism what the Beatles did for

English pop music. From the outside, modern evangelism is seen as a vigorous attempt to brainwash millions into a homogeneous system of thought. To many it evokes the colonial missions of the 18th–20th centuries, which led to the extinction of hundreds of indigenous cultures and thousands of languages.

Within the UK, however, it can be hard to see this resemblance. Christopher Hitchens cites his religious English prep school as foundational in his contempt for the religious, but this is somewhat unexpected now, when Church of England congregations are shrivelling – both in numbers and in skin quality, as the average age increases – and most religious activities are mild and often pleasant. A regular attendee of a small English church might think, what is it about bake sales, Bible discussion groups and mildewed pews that has provoked these attacks? Here in Durham, I enjoyed a certain alertness during a string of Fridays last year, from a church group of youngsters who set up a table on the sidewalk to hand out free coffee in the name of the Lord (as it said on the cup). It was not conditional upon further examination or conversion, just free coffee, a bit rusty presumably for reasons of plumbing, but nonetheless I started bringing my own cup along on Fridays.

In the US, things are carried out on a larger scale, which is why the degrees of euphoria, or alarm, are much higher. When Faith Church, in Mitford, Connecticut, decided to serve coffee, it was not a table on the sidewalk but their own 'SonBucks' coffee house, with Christ depicted amidst their Starbucks-style logo. Coffee is just one of many marketing strategies that anticipate community preferences, and American megachurch leaders tend to use marketing jargon like *branding* and *marketing blitz*. Their use of 'customer' surveys since the 1950s has enabled ministers to 'lower the threshold between the church and the secular world,' as Frances Fitzgerald puts it.[7] 'Seeker' churches grow their congregations by delivering what people want. It is no coincidence that megachurches resemble mega-stores in America, not only in building size, but in the multiplicity of popular services they provide, and the direct relevance they achieve with inspiring messages on daily issues such as marriage, occupations and children.

American megachurches draw in so many thousands that whole towns can sprout around them, particularly in the US South and Southwest. Recalling earlier centuries, megachurches perform many of the civic functions that even recently were covered by secular groups, from girl scouts to bowling teams and the Rotary club. As Robert Putnam discussed in *Bowling Alone*, the decline of these local organizations left a void and a need for community (or 'social capital' as academics call it). By providing childcare, drama and art classes, sports facilities, youth groups and counselling services, megachurches seem good value compared to professional therapists, private dance classes and expensive gym memberships – especially with church donations being flexible or often optional. So although coercion has undoubtedly boosted major religions throughout history, successful religions also draw participants by addressing universal human concerns,[8] the same ones that kin and society have dealt with for hundreds of thousands of years,[9] as Steven Mithen, William Calvin and Lewis Wolpert discuss. Religion serves crucial social functions in non-Western societies as well, as Hiroko Kawanami and Robert Layton discuss.

This is one reason why religion is probably not just a 'meme' as some have characterized it, implying an idea that spreads simply through self-replication.[10] 'It is a stretch to claim that all religions spread through a meme-like process,' writes evolutionary biologist Jerry Coyne in his review of Daniel Dennett's *Breaking the Spell: Religion as a Natural Phenomenon*. 'In practice, memetics becomes an exercise in tautology: all it says, post facto, is that one meme spread at the expense of others because it had more "spreadibility"'.[11] Also, religions have spread, but so have languages, technologies, cultures and people for millennia. These features often spread together as cultural complexes, such as when agriculture, pottery and house styles, and Indo-European languages spread into Europe from the Near East 8000– 5000 BC, or when the technologies, infrastructure and languages of the Roman Empire spread into Europe 5,000 years later. Which bits are doing the spreading, and which ones are hitching a ride? What *causes* one culture to replace or alter another?

Jared Diamond argued that it was 'guns, germs and steel' that enabled agriculture-based state societies to expand at the expense of indigenous communities worldwide.[12] Could a religious meme cause all this in order to spread itself or, conversely, could a religious meme spread *without* its cultural accompaniments? The Mongols, among the most ruthless conquerors in history, were actually quite flexible and synthetic in their religion – open to absorbing new influences. During the 13th-century Mongol reign, Genghis Khan's grandson Möngke Khan told Christian missionaries that the various religions were like the five fingers on each hand, and Kublai Khan even once considered adding Jesus to the Mongol pantheon.[13] Such open incorporation is also partly why Ancient Egyptian gods were involved in everything from storms (Baal) to incense (Dedwen), drinks (Fektet), yearly floods (Hapy), embalming (Anubis), childbirth (Bes), and even snatching and tearing (Pakhet).[14]

Studying how religions arise, persist, succeed and fail among real people requires a complex application of evolutionary theory,[15] rather than the simple, email-like metaphor of memes. Like Darwin and many others, Daniel Dennett has shown how such a simple theory of how things change – specifically through variation, transmission and selection – could be deceptively powerful. In *Darwin's Dangerous Idea*, Dennett marvellously applied it to just about everything, from the evolution of ideas, knowledge and even universes. Culture – which underlies how religions become popular, or how groups behave over time – evolves through ideas and behaviours,[16] which 'mutate' differently and are culturally transmitted and selected in unique ways, so culture evolution does not operate just like genetic evolution (or memes).[17] On this basis, Richard Dawkins' social evolution is critiqued by evolutionary anthropologist David Sloan Wilson, partly based on the difference between Dawkins' *Selfish Gene* model and culture evolution models for how cooperation and altruistic behaviours arise in human groups. Group behaviour is what makes culture evolution complicated, and we are evolved for group behaviour.[18] 'If mirror neuron theorists are right,' says Gordy Slack, 'the advantages of directly understanding others may be so great

that they blow the evolutionary costs of occasional self-sacrifice out of the water.'

Should scientists contest religious beliefs?

In early 2008, the National Academy of Sciences and the Institute of Medicine released a short booklet, *Science, Evolution, and Creationism.*[19] Explaining, to as wide an audience as possible, why evolution is science and creationism is not, is a crucial outreach activity that evolutionary scientists should take. The temptation for some, though, is to go a step further. Evolutionists such as Kenneth Miller[20] have rightly taken the 'science' of Creationism to task, but at the same time, Mark Hulsether wonders, have atheists learned enough about religion to comment?

A well-renowned scientist can sell personal metaphysics and creaky social theories through the kind of celebrity 'authority' that he or she laments in religious leadership. Lesser-known social scientists who study religion more intensively may be less trusted, because humans believe more dominant or prestigious people – an evolved innate bias, powerfully reinforced by culture.[21] A recent study showed that we tend to dismiss factual evidence even to believe gossip.[22] Instilled with mirror neurons, as Gordy Slack describes, our brains are actually evolved to copy what is in each other's minds. In my own research, I find copying so prevalent in popular culture that a good model of fashion change simply assumes people copy each other essentially at random.[23]

In university statistics courses, there is often a cautionary tale about identifying cause in some coincidental correlation, like linking a nationwide rise in women's hemlines to the fattening of bicycle tyres. Thus survey results can be notoriously ambiguous; is it *causation* or *correlation* when a survey shows that people express hostility towards a particular country in a place where a certain religion predominates? Arguments like that of Sam Harris confuse correlation with causality,

Mark Hulsether and Ian Reader maintain. 'In the long run, evolutionary psychologists damage their own credibility,' Jerry Coyne concludes (though sympathetic), 'by resting claims about human behaviour and society on flimsy evidence.'[24]

Claiming that a certain belief system (whether atheistic or religious) is 'bad' or 'dangerous' – full stop – is mere stereotyping, possibly an evolved psychological tendency, which we use to make shortcut decisions in the face of too much or too little information.[25] It is no surprise that pundits, religious leaders and even scientists are prone to it. To sell correlation as causation – of which both sides of this debate are guilty – misuses the trust that science must earn through objective testing of multiple hypotheses.

For social scientists, those multiple hypotheses include more direct, economic and political reasons for a downtrodden region to resent a domineering power, as political scientist Robert Pape has argued,[26] which would not go away even if we could 'abolish' religion. Ara Norenzayan, a social psychologist at the University of British Columbia, and his team have studied the practices of thousands of people in various religions around the world. They find little empirical evidence that belief in God – in itself – actually motivates violence. Furthermore, Norenzayan finds no evidence that secularization promotes greater tolerance: if anything, people who believe in God are slightly less likely to scapegoat others and (in Canada, at least) are slightly more generous.[27]

Instead, Norenzayan finds that *dogmatism* is what underlies group intolerance, essentially regardless of what it is about. In this sense, pundits on either side, in their dogmatic faith either in secularization or evangelism as a universal solution, are as embedded into an emotional process. Our own brains are constructed to rally our emotions to protect our personal beliefs when they are challenged, as Andrew Newberg describes. A potential resolution to emotion-charged arguments is objective information, which allows each side to save face by 'necessitating' a change of position due to new evidence. As Newberg reminds us, even expert scientists must filter all facts through a bodily organ – the brain – distinctly variable

among individuals, and not at all evolved for objectivity. Newberg can present the same evidence to a group of nuns and a group of atheists, and each happily uses it for their own purposes, that is, for/against a belief in God. Since the evidence cannot be definitive, emotions inevitably fuel the polemic, and religion and politics are notorious for sparking pointless arguments. To many anthropologists and psychologists, the current atheist versus (mainly) Christian 'debate' is nothing more than the age-old Us versus Them battle underlying conflicts from ethnic stereotypes to tribal and national warfare. Pitching one's own 'Us' tent and blaming those outside the tent just creates a dangerously false sense of blamelessness concerning what underlies longstanding conflicts. This too has an evolutionary basis. Violence begins not with a particular ideology about creation, as Herb Maschner and Katherine Reedy-Maschner's Chapter 6 and Robert Layton's *Order and Anarchy* describe, but with our much more basic, instinctive competition over sex, status or group identity. Once the lines are drawn, and the 'Other' is defined, other reasons are brought in to justify the animosity – group affiliations, football teams, sexual orientation, ethnicity, or religious beliefs in gods, behaviours and origins.

The edge of reason

If the debate over the social effects of religion needs more evidence, the debate over the existence of God (or gods, beings or forces, among the varied religions past and present) lacks any evidence at all. In the history of philosophy and science, the issue has never been logically resolvable. It just hasn't, despite all those who have had a try, from Aristotle to Augustine, Aquinas, Darwin, Camus, Calvin, Einstein, Nietzche, Pascal and others whom John Hedley Brooke discusses. Otherworldly intelligence, the topic of Seth Shostak's Chapter 17 as well as most religions, is by definition not falsifiable through evidence from our own world. Just as there is always a number bigger than any number you can name, there is always a possible larger Universe that

contains our own Universe, and a possible being more omniscient than our most omniscient being. As physicist Michio Kaku writes in *Parallel Worlds* (referring to quantum physicists Eugene Wigner and John Wheeler):

> If one subscribes to the Wigner interpretation of the Schrodinger cat problem, then we necessarily see the hand of consciousness everywhere. The infinite chain of observers, each one observing the previous observer, ultimately leads to a cosmic observer, perhaps God himself. In this picture, the universe exists because there is a deity to observe it. And if Wheeler's interpretation is correct, then the entire universe is dominated by consciousness and information. In this picture, consciousness is the dominant force that determines the nature of existence.[28]

However valid these theories may be, their scale shows the feebleness in claiming that evidence for biological evolution – which we observe in our world – somehow disproves beliefs concerning otherworldly beings or existences. What could fossil ammonites possibly tell us about such cosmic questions?[29]

As opposed to tautological considerations about the existence of God, we now have exciting new evolutionary sciences of virtual reality[30] and simulated worlds on computers. As in familiar computer games, these models set computer agents within simulated environments, but (unlike games) the agents are programmed to act on their own, so they can learn and evolve by interacting with their environment and with each other. It is entirely conceivable that computer scientists in this century will create a simulation in which the agents evolve enough artificial intelligence to become self-aware. You've seen this in sci-fi movies already, but the self-aware agent needn't be a physical being like the computer HAL in 2001, or the android Data on *Star Trek*. More likely, the agents will feel like the characters in *The Matrix*: existing inside the computer, they will have no way of directly sensing what lies outside their simulated world. What if they ask who created them? If the computer scientists do not intervene, how can these self-aware agents answer their existential questions? As just one thought

experiment, imagine that the computer scientists, in their experiment on the origin of religion, seeded the agents with a bit of 'mental' programming containing general clues about their creators' existence.

It may be easier for us to conceive of ourselves as *doing* the simulating than as *being simulated* because, as Newberg points out, our brains are necessarily egocentric. Yet being simulated is just what physicist John Barrow of Cambridge University has proposed, or more specifically, that we might like to *test* whether or not we are part of a simulation.[31] Barrow, who was awarded the Templeton prize in 2006, suggests we look for 'glitches' in the simulation in the way our world works (in *The Matrix*, recall the scene with the black cat rewinding). Of course, any cosmic simulation would have had to set in motion the entire 13.7-billion-year evolution of Universe itself, in which the evolution of life takes place in the latest 3-billion years (at least on Earth; see Seth Shostak's Chapter 17).

According to the anthropic principle, which David Wilkinson discusses, our own Universe is ideally configured not just for life, but for the very physics that make anything possible at all. Logically speaking, there are two possible explanations for existence itself. Either the Universe was created, as Thomas Aquinas (1225–1274) and millennia of religious narratives have maintained, or else ours is just the one of an unfathomable number of universes – the multiverse, as Wilkinson describes – that we happen to inhabit. Before you settle on the latter, however, as being the more responsible, more 'scientific' theory, consider what some physicists have to say about the plausibility of someday creating another Universe by very (very) advanced future technology:

> In our universe, powerful laser beams and particle beams may be used to compress and heat a tiny amount of matter to fantastic energies and temperatures. We would never see the baby universe as it begins to form, since it expands on the 'other side' of the singularity, rather than in our universe . . . But a wormhole would, like an umbilical cord, connect us with the baby universe.[32]

This passage reads almost like a creation myth, and yet it is a plausible scientific scenario.

While the creation of new universes is just theoretical conversation for now, current technologies for genetic engineering, robotics, information technology and nanotechnology are advancing so quickly that radical change will be witnessed in just decades, as humans increasingly engineer their own biology.[33] The potential changes on the horizon – enhancement of bodies, improved mental capacities, extreme longevity – suggest the possible realization of Huxley's *Brave New World*, or new species of humans. As we consider such scenarios, religion would seem increasingly irrelevant for the future, but that is not what is happening. There are not only those retreating *from* science towards religion, but those *embracing* science in a religious way. When futurist Ray Kurzweil says he is 'not planning to die' in Joel Garreau's *Radical Evolution*, and conveys a rapturous anticipation of accelerating human evolution to bring a 'rapid explosion of intelligence and beauty,' Garreau comments that Kurzweil 'is not talking about us someday meeting God. He is talking about us *becoming* God'.[34]

This book is not meant to dwell on such metaphysical questions. It uses them as part of the case that the complex issues of cultural evolution, science and religious belief in society require knowledge of the rich variety of belief systems among the world's societies (anthropology), of religion over the past millennia or longer (archaeology), of what religion does within our minds (biology), of what we do and do not know about the nature and origin of the world (natural science, philosophy, theology), and even the personal opinions of scientists themselves, many of whom are religious.[35] This is the complex, unclaimed territory – the edge of reason – where we stage our debate.