Heavens above! Old notions never die. They just incorporate.

William H. Calvin

An interesting perspective on science and religion is to imagine what would happen should the search for extraterrestrial intelligence succeed. Concepts will change, and that’s the most interesting part of the present exercise. Old cognitive building blocks never die – they just get reinterpreted. And so I ask:

- What makes us have spiritual instincts directed at the heavens above?
- What about spirituality’s constant search for meaning, especially a holistic ‘everything hangs together’?
- Do our language habits cause us to go looking for actors when we observe actions, to expect a designer when contemplating an elegant pattern in nature, such as a crystal?
- How much role do abstract metaphors play in spirituality?
- And what about the ‘spark’ that makes humans so special among the other animals?

I cannot imagine an ape being too concerned with the heavens above, even with watching the Moon’s monthly movements. Why do we imagine our central mysteries as living somewhere in the skies?

Prehistoric scenarios can illustrate the cognitive factors at work, as discussed by Steven Mithen and Tim Taylor in Chapters 9 and 10. For a prehistoric hunter or gatherer with a home base to return to after an afternoon hauling food, getting caught out after nightfall would have been scary. In an African savanna, all of those big cats have to be somewhere, and they hunt day and night. But even half a Moon makes things better psychologically. Once people started paying attention to the Moon’s monthly cycle, they could take occasional chances with staying out late. For the days leading up to the full Moon, there’s lots...
of light after sunset. But the nights after the full Moon, there’s a big
difference, a dark gap between twilight and moonrise.

Now consider how they might have responded to a lunar eclipse. What is the default analogy for the Moon disappearing over the course of an hour? Something being slowly eaten. The eclipsing Moon even looks as if a bite had been taken out of it. We also tend to assume that for every action, there is an actor – and so in addition, they likely assumed an unseen actor in the heavens.

Given how useful the Moon had become, an eclipse might have been threatening, especially if you hadn’t been through a number of eclipses and formed the opinion that the Moon always came back – that there was automatic resurrection after being eaten – if, of course, the actor behind the action could be persuaded.

If you don’t understand a process, you try out another process that you use routinely. (In brain research, I can recall a time when the telephone switchboard was the dominant metaphor for the brain. After computers were added to our conceptual toolkit, we started talking of the brain as a computer.) Everybody knows, no matter how poorly they understand the processes behind the weather, that social relationships can be influenced by pleading, flattery and gifts. In a drought, many people surely gave it a try.

Something like this was likely tried out for eclipses as well. Surprisingly, the eclipse offerings worked much better than any Rain Dance. Just imagine a shaman who claimed to be on speaking terms with whoever runs the heavens. The Shaman said that an eclipse was about to happen, even though no one could see anything wrong. And sure enough, a bite was taken out of the Moon later that night.

Pleading, flattery, gifts and dances – whichever was tried, it seemed to work because the bite soon went into reverse. Cause and effect. Indeed, sometimes the eclipse didn’t happen at all, suggesting that your intervention had prevented it.

I like to view this shaman as being the first scientist, having backed into doing science without really understanding very much beyond a simple correlation. Some examples will show you how easy it is. (There are a dozen methods for warning of eclipses that I examine in How the
Can science itself inspire spiritual wonder? \[\text{Shaman Stole the Moon, and all are considerably simpler than Stonehenge’s methods}^{34}. If you can count backwards to when the last lunar eclipse occurred, you might stumble upon a simple rule: watch out for the sixth full Moon after an eclipse. You’ll have half a chance of seeing another lunar eclipse if the clouds cooperate.

Solar eclipses occur only on the new Moon before or after this full Moon when a lunar eclipse is possible. They will be seen somewhere on Earth, but likely not where you happen to be. If the shaman were to try warning of a solar eclipse every 6 months, it would soon destroy whatever reputation the shaman had for being well connected.

But short-term warnings are still possible. The Sun itself is too bright to look at, even when half eclipsed, so no one notices anything until matters get serious. But the shaman could have easily gained an hour’s warning, just by resting in the shade of a tree. Insects eat holes in leaves, so a leaf’s shadow on the ground has little bright spots here and there. The spot’s shape is not that of the hole but of the Sun. When the Sun is half eclipsed, the circular spot will have become a crescent. (It’s like a pinhole camera producing an inverted image.)

Perhaps, lacking a leaf, the shaman crossed his fingers to make a pinhole. A crystal with many facets works nicely because it produces a series of circles on nearby dark surfaces. They turn into little crescents as a solar eclipse progresses. I like to think of the shaman as the first to wear a diamond ring, carrying the scientific instrument around all of the time.

More interesting than the technique is the psychology behind shamanism (as discussed also by Lewis Wolpert in his chapter), especially advance warnings. These methods are crude compared to what we can do with our modern understanding and modern instruments. Crude methods, after all, produce many false alarms, where no eclipse follows the warning. But observe the psychology: even when the shaman is wrong some of the time, the people would have thought that their pleading-and-gifts technique worked. Indeed, it completely prevented the eclipse on those occasions!

So how did the people come to view the shaman? Assuming the shaman kept the technique secret (and didn’t use it whenever feeling
hungry), they would have thought that the shaman was on speaking terms with whomever runs the heavens.

This would have been very good for business. The shaman’s everyday activities surely involved producing placebo effects via authoritative reassurance. And who would doubt the shaman’s ‘Take this and you’ll feel better’ after such a demonstration of being well connected? Since at least a third of modern pain patients respond temporarily to a placebo drug, we might expect that, after an eclipse, the shaman’s treatments became even more effective at relieving pain and anxiety.84

I also imagine this protoscientific shaman as advancing to become the first full-time priest, supported by the community and no longer having to hunt, gather, and prepare food in the manner of a part-time shaman. The society likely came to rely upon warnings so as to conduct appropriate rituals beforehand. But remember the fate of the two Chinese astronomers, Hsi and Ho, who failed to predict an eclipse and so failed to warn the emperor to schedule his rituals.85

Undoubtedly gods were postulated on many other occasions, but here’s one that seems both powerful and approachable. So the psychology of eclipse predictions offers at least one plausible historical possibility for our preoccupation with the heavens, one that likely carries over to SETI.

Intellect is only the frosting on the deeper currents of instinct and tradition, many of which influence spiritual concerns by providing a focus around which to organize beneficial nonheavenly concerns. There’s probably a more primitive undercurrent of expecting gods to be running things from a distance, somewhere out there.

What about our constant search for ‘meaning’, especially a holistic ‘everything hangs together’? That aspect of spirituality is surely going to be a component of the public’s reaction to Contact. Unless we understand something about human instinct in this area, we are going to make some serious mistakes in dealing with the Earth-bound public.

‘Given our routine search for meaning, it is not surprising that religious concepts arose’, I said earlier, and ‘they will change as we understand brains and evolution better.’
Can science itself inspire spiritual wonder?

We search for meaning quite routinely. When a person approaches, we ask ourselves ‘What does he want?’ When a sound stream arrives, we try to figure out the news about who did what to whom. The neurologist Adam Zeman noted that a search for meaning is intertwined with most sensory input.

Eye and brain run ahead of the evidence, making the most of inadequate information – and, unusually, get the answer wrong . . . Our knowledge of the world pervades perception: we are always seeking after meaning. Try not deciphering bad sign, or erasing the face of the man in the Moon. What we see resonates in the memory of what we have seen; new experience always percolates through old, leaving a hint of its flavour as it passes. We live, in this sense, in a ‘remembered present’.

It is language that gives our search for meaning most of its daily exercise. There is nothing spiritual about most of it. Any single word is likely to be ambiguous because it has multiple connotations. Its context is needed to guide us to the intended meaning. With two words, there is more ambiguity to resolve. Worse, a group of words often refers to a unique, never-happened-before situation. The meaning that the speaker had in mind was perhaps a set of relationships such as ‘Who did what to whom.’

As listeners, our task is to guess what was in the speaker’s mind. Often we can do it without any words at all, just the other’s direction of gaze, posture and facial expression are enough. To that we can add a set of clues contained in a set of sounds or gestures. Encountering an action term, we go looking for an actor to go with the verb. ‘Give’ causes us to search for three nouns: a likely giver, the probable recipient and an object that is suitable for giving.

A word can also be abstract, a concept where you cannot point at anything. (Say, the word ‘nothing.’) In sentences, the speaker may cue you about the intended level of abstractness by saying ‘a dog’ (the whole class of mongrels and breeds) or ‘the dog’ (a specific dog; you’re supposed to know which one from a prior sentence). If it’s ‘a dog’ that you hear, you automatically ignore the colour, height, hair length and disposition that make an individual dog unique. From this you get the abstract dog. All
this goes under the heading of syntax and grammar. Such pointers are often omitted, leaving you to try out a range of interpretations, from the concrete to the abstract. There are lots of ways to be wrong, and speakers are expected to package the concepts well enough so that the intended listener can guess the overall meaning.

We are surprisingly comfortable with abstractions, and that makes spirituality possible. The problem, of course, is that the ambiguity load can soar, making your quality control slow. For some attributions, you may even give up and just accept what others say it means.

The quality-control problem is even worse for the speaker, who has to initially generate some options for what to say next. If it is not a matter of choosing between set pieces, it likely involves novel combinations of words. Since most of our ideas start off as incoherent as our night-time dreams (with people, places and occasions that do not go together very well), we first have to improve them.

Next, we must choose among leading candidates. If the sentence is longer than three words, we’ll need to introduce syntax in the form of appropriate tags and pointers to prevent terminal ambiguity. Checking them against the ‘rules’ of the local syntax is much like playing a game that has arbitrary rules. To help others read your mind, you’ve got to make sure that your words all hang together.

We are always searching for coherence, trying to shape up combinations that ‘hang together’ well enough to act on. Guessing well, as we try to make a coherent story out of fragments, is routine in making and understanding sentences. It is routine when deciding what to do next.

When our quality control falters and incoherence is the best thing we can come up with, others will suspect we are dreaming or drunk. If the behaviour persists, observers may suspect hallucination, delusion or dementia.

The search for meaning permits us to pyramid complexity and nest sentences inside other sentences. We can chain meanings and call it logic if it survives double-checking. We can play formal games, checking our candidate move against the arbitrary rules. We can create contingent plans and tell good stories.
We also search for coherence in our surroundings, ways in which things unexpectedly hang together – and the pleasure we get from finding hidden patterns is striking. We have that eureka feeling each time we discover order amidst seeming chaos. This is what makes jigsaw and crossword puzzles so attractive, not to mention doing science. Spirituality is, in part, about seeking how things all hang together. Coherence finding has spawned an enormous range of art and technology.

Sometimes you don’t notice an overall incoherence because short segments of it are, by themselves, understandable. You can also start a sentence with one concept and, via a familiar chain of inference, reach a conclusion that is only another way of stating the initial concept, a mere synonym. No value was added by the chain of reasoning, but you feel as if you have accomplished something, it sounds so good. ‘Wherever you go, there you are.’ Your luggage, of course, is another story.

There are a lot of beginners’ errors to discover, the task of a lifetime. Without critical thinking, we can easily get trapped, either by our own errors or via a moneymaking trap set by another mind. We routinely see connections that aren’t really there, as in astrology. We see one true connection (bleeding the patient really does help, provided that the patient has an iron accumulation disorder) and generalize it too far (bleeding all patients for whatever ails them). It can take centuries to overcome these errors.

In the aftermath of the discovery of an extraterrestrial intelligence, we’ll be making mistakes like that. We can’t expect the public to practice critical thinking on such short notice.

A spiritual instinct probably arose out of some predecessor instincts. Certainly sharing has to be a candidate for one of those instincts because it can be seen as leading to the Golden Rule and similar sentiments expressed in many religions.

A big ape does not simply plunder a tasty resource in another’s possession, as there seems to be an innate concept of ownership via possession. An adult holding a branch may tolerate another removing some leaves, especially (in chimpanzees at least) if recently groomed by that individual. Chimpanzees occasionally hunt and the possessor
of part of the carcass may share some scraps of fresh meat. This is not a matter of offering some to others. Scraps are usually shared reluctantly, and only if someone holds out an upturned palm and screeches loudly enough. If any violence occurs, it’s never from the have-nots: occasionally the possessor will drive off one obnoxious beggar. Note that the chimp’s prey (monkeys, bush pigs) are small. The possessor could consume the whole thing in a few hours and probably would except for interruptions by the noisy crowd with outstretched hands. But once our ancestors finally figured out how to acquire a large grazing animal about 2.5 million years ago, such an animal is simply too big to eat by yourself. Better to share and expect others to do so.

The problem is that everyone loves something that is ‘free’. And so we spend a lot of time guarding against freeloaders. We even label them ‘cheaters’. There seems to be an instinctual tendency to ‘pay back’ violators even at considerable cost to yourself, against all notions of ‘economic man’ looking out for Number One. This instinct, while crude, was useful to evolve our extensive tendencies to share food and help others. But it too has a dark side, such as suicide bombers who seem willing to ‘pay back violators’ at extreme cost to themselves.

I used to contrast all of the religious wars fought throughout history with all of the undoubted good that religions do (though now an atheist, I was brought up singing in the church choir and am quite aware of their good works and their civilizing influence on the young). But now that I know a little more about the psychology of intolerance and the history of warfare, I am less inclined to blame the religious instinct for the wars and inquisitions. My reasons seem relevant to the possible responses to a successful E.T. search.

People just naturally form up teams, ones with almost random membership. It’s very handy in natural disasters, the way ad hoc search teams will form up to search collapsed buildings and rescue survivors. Membership on other teams can be equally arbitrary, as when based on what external abstraction you support. Occasionally football fan clubs beat up on one another but, then, so do their proxies. Or the
group may form up around some more visible attribute, such as ethnicity or skin colour or style of haircut. I’m beginning to feel that, if they didn’t organize around religious differences, they’d just organize around something else, likely without the same kind of redeeming qualities we often get from religions.

So teams will form up around how to interpret the contact. Some will suspect the science because they suspect scientists of being against spirituality. Scientists sometimes needlessly offend conservative religious people over their beliefs. Usually our sceptical response is not to the beliefs themselves but to the reasoning offered for those beliefs. The scientists usually aren’t doing it to offend or because they are against spirituality. (After all, we scientists spend much of our time seeking to understand how everything hangs together and how it came to be that way.)

Scientists just automatically carry over their effective scientific argumentation techniques to reasoning about the world more generally. Wishful thinking and faulty logic seems to be everywhere (certainly in science), so why not religion as well? (The physicist Gregory Benford throws ‘The Church of the Unwarranted Assumption’ into one of his novels about a space colony.) Scientists automatically form up an opposing team whenever a new fact or insight is claimed. We eagerly try to prove it wrong, to find the holes in the argument – and if all that fails, we may try to show that the idea isn’t even original.

Uncomfortable as this procedure may be, it is how we discover our errors and move on. A scientist (if wanting to keep his reputation as a scientist) doesn’t challenge another to a duel or file a lawsuit. Or even picket his lecture.

Why should religious authorities be free of error? While some still claim special pipelines, my experience with theologians interested in science has been positive. Most differences need not get in the way of a broad cooperation on most fronts. And we will need to do a lot of consulting and cooperating in the turbulent post-contact period.

Finally, what about that ‘spark’ which makes humans so special among the animals? There is indeed a gap that separates humans from our ancestors and from our cousins among the great apes. If we
encounter an extraterrestrial intelligence, we might get a second take on the issue.

The nature of the ancestral leap to intellect and creativity has been debated for several centuries. It looks as if a big jump in intellectual capacity occurred quite recently, about 50,000 years ago, as Steven Mithen discusses. Yet we became *Homo sapiens*, big brain and all, about 200,000 years ago.

That means that there was a period, lasting about 6,000 generations, when we looked human but didn’t behave anything like the people of the most recent 2,000 generations. These look-alike ancestors were either intensely conservative or not very creative. For example, they might have been able to understand novel sentences spoken by the few who could create them, but without themselves being very creative. Their coherence-finding perhaps wasn’t yet good enough to start from scratch.

This step up – often called ‘The Mind’s Big Bang’ though ‘The Creative Explosion’ is a more informative name – is not about brain size *per se*. That is a surprise. From the comparative studies of brain size spanning many species, we thought that the march in brain size (normalized to a standard body size) was what was behind human intelligence. Part of it, perhaps, but not the burst of creativity that showed up about 50,000 years ago in long-range trading, necklaces, bone tools, very fine engraving tools, portable art and those scenes painted on cave walls – see Chapter 9 by Steven Mithen and Chapter 10 by Timothy Taylor.

How did our brains change, back then? Nothing makes a good analogy, but it may be something like a hard-working computer getting an improved operating system to coordinate the old hardware. The ‘upgrade’ was more capable of handling long sentences, what with their demands for structuring via syntax to minimize the ambiguity, what with their need to seek coherence amid seeming chaos. That in turn made it possible to speculate about the future (including one’s own death) and see trends in the past.

That upgrade likely affected spiritual practices as well, allowing them to go beyond emotional rituals and into the realm of explanations.
Can science itself inspire spiritual wonder?

Without this big step, we wouldn’t be thinking about SETI (see Seth Shostak’s Chapter 17) and imagining the reactions here on Earth.

But notice that our intellects are very recent and riddled with bugs. The fallacies in reasoning and belief serve to fill psychology texts. That’s probably because 50,000 years is just not very much time for gene variation and natural selection to clean up the initial problems. We are still unimproved prototypes: *Homo sap, version 0.8*.

So if we face the aliens any time soon, we will be hindered by our old, unresolved problems in our mental makeup. Furthermore, since any technology we encounter that is more than 50 years ahead of ours will seem like magic to us, we will be feeling bewildered. Let us hope that we have a long time after contact before having to make any serious decisions.
The Edge of Reason?
The Edge of Reason?
Science and Religion in Modern Society

Edited by Alex Bentley
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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.

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 infest 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.\footnote{He has repeatedly developed similar analogies, for instance in an article called ‘Is God A Computer Virus?’} 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, 10 per 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, 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


Notes

1. As discussed throughout this book, but see Gordy Slack’s *The Battle Over the Meaning of Everything* (San Francisco: Jossey-Bass, 2007) for an engaging account of a court case over creationism in school, pitting parents against a Pennsylvania school board.


5. *Science, Evolution, and Creationism* is available online from National Academies of Science and Medicine (www.nationalacademies.org).


16. Augustine, *Literal Commentary on Genesis*, (AD 415): ‘When such a thing happens, it appears to us as an event contrary to nature. But with God it is not so; for him “nature” is what he does.’

17. For example, see: the Science and Religion in Schools Project at http://www.srsp.net.


19. Granted, there are enough ambiguities that creep into Harris’s arguments, plus enough additional complications that arise if we include kindred works such as Daniel Dennett’s *Breaking the Spell: Religion as a Natural Phenomenon* (New York: Viking, 2006), that sweeping generalizations are somewhat risky. Nevertheless it is useful to treat Harris as a representative new atheist and focus on his central arguments.


23. Obviously I have not chosen to ignore Harris, but I do propose to bracket two aspects of his work. One is how he conflates conservative Christianity with a monolithic reading of Islam. Another is his overlap with mainstream US punditry about Middle Eastern conflicts—for example, his vision of ‘Islamo-fascism,’ apologetics for the use of torture, and failure to judge Israeli religious-political behaviors by the same standards used for Christians and Muslims.

27. S. Harris, *The End of Faith*, p. 293.
29. S. Harris, *The End of Faith*, p. 221.

35. E.g. R. H Gundry, *Jesus the Word According to John the Sectarian* (Grand Rapids: Eerdmans, 2001).
38. We must remember that evidence for violence is often evidence for warfare, but a lack of evidence for violence is never evidence for a lack of warfare! Archaeologists have yet to come up with an archaeological signature for peace, but a lack of evidence for violence is not such a measure.


61. For discussion of language evolution see S.J. Mithen, *The Singing Neanderthals*.

62. As I am quoted in W. Jamieson’s *Father Knows Less or “Can I Cook My Sister?”: One Dad’s Quest to Answer His Son’s Most Baffling Questions* (New York: Putnam, 2007), pp. 246ff.


67. See, for example, the Foreward by Mary Midgley, as well as her book, *The Myths We Live By* (London: Routledge, 2003).


72. C. Hitchens, *God is Not Great*, p. 205.


74. See http://www.lancs.ac.uk/fass/religstudies/research/projects/burnley.htm

76. The State Peace & Development Council, which changed its name from State Law & Order Restoration Council in 1997, has been in charge since 1988.

77. When government troops tried to break up a peaceful rally in Pakokku, a group of monks was hurt. Angered by their aggression, the monks held officials hostage. When no apology was forthcoming from the government, they began protesting in numbers on the streets that spread to Yangon and other cities. They were, however, not calling for regime change initially, but for an apology for the mistreatment of monks.

78. There are 227 monastic rules and regulations stipulated for Buddhist monks in the Theravāda tradition.


84. The same thing happens in modern medicine all the time. Unless you know the ‘natural history of the disease’ (all of those ups and downs even without treatment) you can’t be sure your treatment was the cause of the patient getting better. Even if you can rule that out, getting better might merely have been your treatment’s placebo effect.

85. Two Chinese astrologers, Hsi and Ho, had apparently failed to predict the eclipse of 22 October 2134 BC, and as a result were beheaded by an unhappy emperor.