

Is there a conversation to be had between religion and science, or is it all one way?

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Ps 19:1-6; Job 28:1-6, 9-15, 20-21, 23-28; Mt 16:1-4

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Science and religion are often seen as in conflict. Not least, of course, in the history of this chapel and college. I want to explore what to me are unnecessary tensions and what may be necessary ones.

Let me begin by proposing a definition of science: The application of intelligence to the question, "How does it work?" Intelligence has led to some methodological discoveries such as controlled experiments, the principle of falsification, and the importance of mathematics. No one should take exception to this. If we want to know how something works, the current state of science will give us the best available answer.

1

Let's take a contentious example from what science says to religion. The answer to the question, "How have species come about?" is, "By evolution."

Let me say to my co-religionists who doubt this, the science is clear. The great diversity of life on earth has come about through evolution over the past 4 ½ billion years. The evidence is partly plain to see. On last year's choir trip to Arran, I showed people the unconformity in the rocks where James Hutton in 1787 found the evidence to confirm his theory that the earth is unconscionably ancient; far older than the 6,000 years then calculated from the Bible and other historical sources. I find Hutton's discovery of deep time so mesmerising that I cannot resist repeating the gist of the evidence now.

On the shore, with the sea to one side of us and the mountains the other, there is a rock exposure where the bedding planes of the lower rocks tilt up towards the sea, while they are capped by rocks that tilt down towards the sea¹. How can this have come about. Logic requires this sequence simplistically put.

1. Mountain A erodes and, like the mountain behind us, sand etc. from it is carried down in rivers into the sea, as is happening below the waves here.
2. The sand settles in roughly level beds, due to gravity. More settles on top and, over time, the whole turns into rock.

¹ There is an excellent video showing and explaining this site. [Arranology: The Big Story - YouTube](#)

3. Earth movements raise a new mountain, B, that includes our rock, now tilted so that its beds are vertical.
4. Mountain B erodes until our rock lies below the sea, still with its beds vertical, but now eroded to a flat surface.
5. Mountain C is raised; it erodes; its sands is carried in rivers to the sea (or, in this specific case, to more of a lake), where it settles on top of our eroded up-ended rock, and is in due course itself turned into rock.
6. Lastly, both rocks are raised into a new mountain, D, with our rocks tilted at 45 deg. And this mountain is partially eroded to expose our rocks as we see them now.

Clearly this must take time! Currently it is thought that the lower rock was deposited about 500 mya and the upper rock about 360 mya.

And here is a biological example from a paper thirty years old now², but it is super neat.

Aphids drink plant sap, a sugary drink devoid of essential amino acids. At the start of their evolutionary journey about 200 mya on this diet they teamed up with a bacterium, *Buchnera*, to live in its cells that made the amino acids in return for some sugar. The computed evolutionary trees, or cladograms, for the aphids and for the bacteria very closely map onto each other. This, despite the fact that the aphid cladogram was constructed from fossil and anatomical data and the bacterial from DNA sequencing. And, as a further control, other sap sucking insects who independently evolved this way of life have different supporting bacteria, but show a similar matching of cladograms.

The theory of evolution is at least as fundamental to biology as the periodic table is to chemistry or the theory of relativity to physics. If the account of the creation of the world in the first chapter of Genesis is in anyway a scientific account, we can say it was a good stab for 2 ½ thousand years ago. However, if the author could time travel to today, they would be amazed and delighted at what we now know of the process.

That is not to say that there cannot be challenges to some accounts of evolution. Think of the way social Darwinists applied it to human society with theories like eugenics. Even the work of Richard Dawkins suffers from something similar. He came up with the compelling metaphor of the Selfish Gene. Yet this is an imposition of anthropomorphism and purpose on genes. A more careful explanation would avoid using words like 'selfish' in describing the maths-like logic: Genes that make it into the next generation are likely to have certain features that make it more likely that the organisms carrying them will survive and reproduce. (You may say, give Dawkins a break – he was writing a popular book. Amusingly, when the person from the bookshop called to say that my copy was in, they called it "The Selfish Genie", rightly attributing selfishness to a person, if only an imaginary one.) Using the selfish metaphor, I suggest, unjustifiably invites the application of evolution to naturalise human selfishness, even if Dawkins would wish to say that we should resist our selfish genes, as Huxley argued before him.

² Nancy Moran, Paul Baumann (1994) Phylogenetics of cytoplasmically inherited microorganisms of arthropods. *Trends in Ecology & Evolution*, Volume 9, Issue 1, January 1994, Pages 15-20

An equal but opposite anthropomorphism – though one I am tempted to exempt from my strictures! – is the more recent emphasis on the importance of cooperation in the steps of evolution. Most of the great leaps forward in the evolution of complexity have arisen through two or more organisms coming together to make something novel. The breakthrough moment was the first publication by Lynn Margulis in 1967³. Her theory that mitochondria and chloroplasts had once been separate bacteria that had united within a eukaryotic cell was just being raised with us students in the early 70s... as an interesting, speculative idea. Now there is really no doubt. And from this flows the recognition of other key collaborations: the evolution of sex, multicellularity, diverse symbioses such as the aphids and their bacteria, and social insects. If one speculates that the origin of life lies in an RNA world, then presumably life itself began with the cooperation of two RNA strands, one helping to copy the other.

Yet as far as the application of this to humans, perhaps it says nothing more surprising than that sometimes acting competitively is advantageous and sometimes cooperating will be better⁴.

2

A reverse contentious example is where scientists declare the non-existence of God. If some people overstep the boundary between science and religion by holding onto literal readings of scripture, this may be an opposite trespass. Of course, there are plenty of arguments against the existence of God, but can there be any purely scientific ones?

There has been a strong tradition that only science gives us reliable knowledge. One might call this ‘nothing but-ery’. There is nothing worth knowing apart from what science can tell us. This is clearly an exaggeration as there are vast swathes of life that science does not touch, but which are highly important and over which people deliberate: morality, aesthetics, relationships, etc.. The intensity of argument demonstrates that people do not believe that these are mere matters of personal taste.

To explore the potential gap between the domains of science and theology, I offer this evening a speculative framework that I have developed from a brief brush with anthropology. I have told several people that I was going to talk about emic and etic, but as my reading has gone on, I think the more helpful distinction is between outsider and insider points of view⁵. I must admit that I have adapted these ideas in ways that might horrify any anthropologist listening. In my defence, anthropologists do seem to call the outsider’s point of view the “scientific account” of a culture⁶.

³ Her own account is in Lynn Margulis (1998) *The Symbiotic Planet; a new look at evolution*. London, Weidenfeld & Nicholson

⁴ A general review of this topic is Jonathan Silvertown (2024) *Selfish Genes to Social Beings; a cooperative history of life*. Oxford U P

⁵ Till Mostowlansky and Andrea Rota (2016) A Matter of Perspective? Disentangling the Emic-Etic Debate in the Scientific Study of Religion\\$. *Method & Theory in the Study of Religion*, Vol. 28, No. 4/5, Special Issue: A Matter of Perspective? Disentangling the Emic-Etic Debate in the Scientific Study of Religion\\$, pp. 317-336

⁶ I should add that my description of the insider position is much influenced by Phenomenology.

I am claiming that science as science is an outsider point of view, while making remarks about God is restricted to insiders – amongst whom will be scientists, but not science per se.

An anthropologist, as an outsider, might study a West Coast IT company where most men wear crew-neck T-shirts rather than the traditional grass skirts. The anthropologist observes the workers' behaviours and tries to deduce the underlying psychology and social rules of the culture. This is a positivist account, not normative or judgemental. It is descriptive, but may come to be used by the company management to improve worker productivity.

Anthropology is a social science, but in these stances it shares the outsider point of view with the natural sciences. At their roots lies Descartes' dualism of mind and matter⁷. The mind of the scientist looks out onto the world much as if nature were a machine and asks, "How does this work? this culture, this star, this molecule, this cell?" There will be subsidiary questions like, What size is it? What types are there? What forces are involved? Science prepares the ground for the technological question, "How can we use this?" and the economic, "How can we sell this?"

Contrast this with the insider experience. Think of an employee at that IT company. They are immersed in their world. They share the unspoken assumptions or the voiced common sense of their work community. Their tools have become extensions of their bodies. Whether these are the cars they drive or the computers they operate, they are used with subconscious skill. Much of their social relations will also be subconscious, such as picking up group emotions through transference. This does not preclude reflection and debate, but these are now normative and purposive, "How should we do this?"

The Cartesian dualism has collapsed in this insider world. Personhood extends from brain, to hands, to tools, to setting and place. Thinking is a shared process that is enabled by upbringing, affected by bodily states like sleepiness, by reverberating emotions like anger or party-spirits, and even the national mood. As Erazim Kohak, perhaps my favourite author, alluding to Descartes' famous claim, puts it, "Long before the *cogito* there is the goodness, truth and beauty of the *summus*."⁸ We are, therefore I think.

This is not to say that insiders do not practice science as an outsider, but its purpose now lies within the insider perspective. It may be a career as an computer scientist. It may be to make money for the company, or for the sheer joy of discovery. It may be by way of warning, as ecology, climatology and other environmental sciences are needed. Someone who is a scientist will be flipping from insider to outsider and back again all the time; one moment planning a careful experiment, the next exclaiming 'wow' at its results. One moment caught up in the social dynamics of the lab, the next trying to analyse and

⁷ It may surprise some scientists to know what a bad press scientific Cartesian dualism gets in Post-Modernism and environmental philosophy.

⁸ Erazim Kohak (1984) *The Embers and the Stars; a philosophical inquiry into the moral sense of nature*. University of Chicago Press

understand the behaviour of a colleague. Using Martin Buber's old terminology⁹: The outsider has an *I-it* relationship to what they are studying; The insider has an *I-Thou* relationship to the other members of the world they inhabit together.

It is in the insider's world that god may come into view. By god here I mean the grandest of metanarratives for a community. The questions asked are, "How should we live? What is the purpose of life? What are its ground rules? What are we to make that we are here at all?" Throughout human history, most societies have sensed a deep interiority in and between ourselves that might be called 'spirit', and, equally, a beyondness that both beckons and challenges, that might be called 'god'. These intuitions call forth practices and experiences that might be called spirituality and worship. God and spirit can only be glimpsed from the inside, especially from within these practices; they are out of view to the outsider. For the outsider they may make little sense, just bizarre behaviours of strange cultures.

The scientific observer, with their outsider's point of view, can only look in on a mechanism, a behaviour, and cannot access the interiority of the shared psyche of a community. Neither, looking in, are they able to view the beyondness that can only be seen while looking out¹⁰.

However, I suggest science itself cannot tell us why there is something rather than nothing, or what the purpose of life is, or whether god-talk might be onto something or is mere nonsense. Scientists as people, as inside the human community, will explore these questions, just as the rest of us do. We all debate what counts as evidence and valid arguments. Science can contribute to this, but it is not set up to answer definitively whether there is a god or not.

Even Dawkins once launched a campaign with a slogan on a side of a bus. It said nothing more confident than, "Don't worry; there is probably no god."¹¹ Would it be more reassuring to say, "Don't worry; there might be a god."?

⁹ Buber, Martin (1937). *I and Thou*. Translated by Ronald Gregor Smith. Edinburgh: T. & T. Clark.

¹⁰ I am being rather unfair here. Science as science can investigate whether praying for things increases their probability, or can compare the MRI scans of people watching a church service or a football match. Such scientific information can then be used as evidence in insider debates about religion. So it can tell us that Genesis 1 does not give an accurate, up-to-date account of evolution, but that leaves untouched whether its claim that god is the originator of the universe – though it may throw doubt on the whole value of Genesis 1, depending on what genre one assigns it to.

¹¹ In January 2009. More information in Susan E. Gillingham (2011) *Theology amongst the sciences: A personal view from the University of Oxford*. *Verbum et Ecclesia* | Vol 32, No 1 | a576 |

Ol: <https://doi.org/10.4102/ve.v32i1.576>

I read this interesting paper after I preached the sermon while hunting up a reference to the bus slogan.