

# Science needs its Gods and religion is just politics

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*"There are more things in heaven and earth, Horatio,  
Than are dreamt of in your philosophy".*

## The Great Mysteries

The human brain is finite.

Human cognition has increased as we have evolved but is limited by the size of our brains and of the senses (including extended senses) that the brain has access to. Human comprehension is circumscribed and cognition resorts to circularity when the boundaries of comprehension are reached. Reality is whatever the brain can perceive as reality. Knowledge is whatever the brain can comprehend as knowledge. Curiosity about the surrounding world is an innate part of the human cognitive state and drives the process of inquiry we call the scientific process.

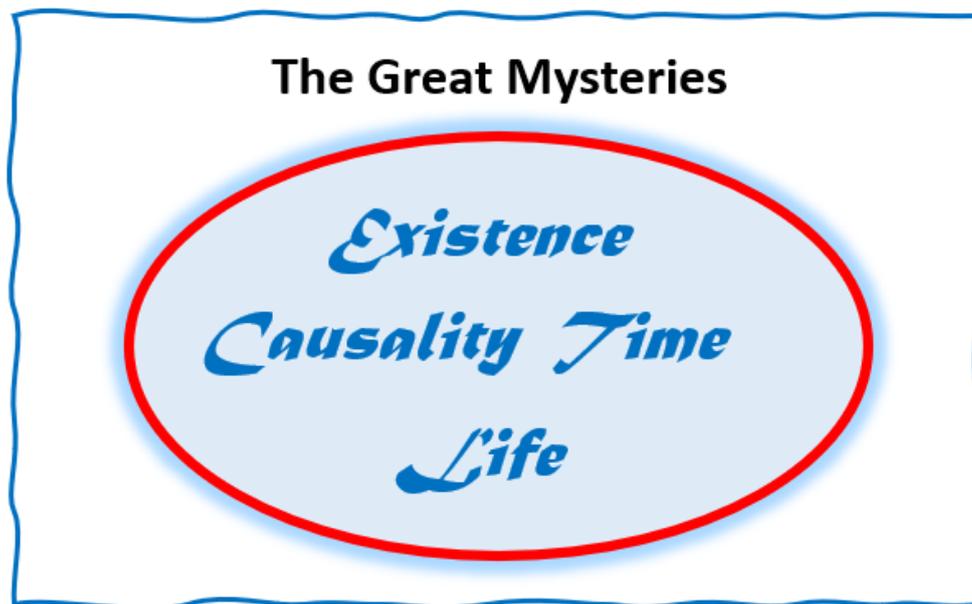
The process of Science, too, is subject to many limitations. Human curiosity can only explore the field that is illuminated. There are unavoidable initial conditions and necessary boundary conditions which circumscribe the region within which inquiry can take place. The process can only live within these boundaries and cognition is blind at and beyond these boundaries. The limits are set by the boundaries of human comprehension and at each limit, Science creates labels for that which is incomprehensible. But Gods by any other label are still Gods.

The Four Great Mysteries are those of *Existence*, *Causality*, *Time* and *Life* but of these it is **Existence** which rules them all. It used to be that the Great Gods together with the minor gods they spawned, were seen as the answer to such mysteries. Nowadays, the Great Gods of Existence, Causality, Time and Life are underpinned by a pantheon of minor gods such as – but not limited to – Random event, Life, Matter, Energy, Reason, Logic, Gravity, Electro-magnetism, Strong Nuclear and Weak Nuclear.

Human cognition is primarily constrained by physical limits. The brain is finite in size and has only so many senses available. Reason and logic are inbuilt algorithms. We encounter circularity if we try to resolve whether this logic mirrors the surrounding world, or whether our perceptions of the surrounding world are only what can be seen through the windows of our logic. Comprehension is inherently limited, and knowledge

can only be that which can be comprehended. It balks at defining the question that Existence is the answer to. Science merely assumes that Existence is. It further assumes that all that can be observed exists and is real. The process of Science cannot address what cannot be observed or what reality is.

Human comprehension cannot conceive of anything truly random which must be without cause. Causality enables the process of science and yet Science has no option but to invoke random, causeless events to establish initial or boundary conditions. In cosmology, Random has become a minor God (or minor Devil may be more to the point). Similarly, the passage of time is a given. Science can speculate about but cannot address the nature of time. It can be speculated that the passage of time emerges from existence or that causality and the passage of time are different facets of the same God. What life is and how life came to be lies also tantalisingly outside the realm of human comprehension. But the reality of life is the initial condition for the sciences of biochemistry and biology and biochemistry and medicine. The initial conditions assumed for any science in question cannot be addressed by the subsequent process of inquiry.



The Four Great Mysteries have not changed in the million or so years since they were first recognised by human cognition as being mysteries. Aristotle did not know the question that existence was the answer to, and neither did Albert Einstein or Stephen Hawking.

### **Gods are cognitive constructs,**

*As Pooh puts it, "when you are a Bear of Very Little Brain, and you Think of Things, you find sometimes that a Thing which seemed very Thingish inside you is quite different*

*when it gets out into the open and has other people looking at it."* But even Pooh does not think that Christopher Robin is a God.

Animals have no gods or religions. Only humans do. No animal treats humans as if they were gods. Not even the most highly bred, entirely decorative, and otherwise useless lap dog thinks its human creator is a god. But all domesticated animals know that their humans can do magic beyond their comprehension. They know it, accept it and make use of it. They beg and pray sometimes for the magic of their humans to produce food, but they have no urge to investigate the magic or to explain it. Animals have insufficient brain. Curiosity and the need to understand and the urge to explain are cognitive things. And on this planet only humans have passed this cognitive threshold. Not even our closest relatives, chimpanzees or bonobos, have sufficient brain. Cognition is what enables – and limits – our view of the world. Mystery and Wonder exist because human comprehension is not – and cannot be - infinite.

A striking – perhaps a defining – characteristic of human cognition is curiosity and the emotional need to explain. We observe patterns in the world around us and look for explanations. When we have no explanations, we speculate. When we have no answers we invent them and the only constraint is that the invention be not contradicted by our observations. We do not demand proof for our speculations, only that they not be disprovable. Where we expect to find patterns and we do not, we speculate. We go the extra mile and create beliefs around our speculations. When we encounter the inexplicable we give it a label. A label enables us to create a neat package enveloping all the unknown unknowns. We observe irregularities or failures of expected patterns and look for explanations even if there is no explanation of the original pattern to begin with. We speculate about our speculations. And again when we reach an impasse or find things inexplicable we give it a label and pretend that naming the inexplicable creates an understanding.

A *god* or *The God* and all derivatives such as *deities* and *saints* and *devils* and *demons* and *prophets* are all labels. The key property we assign to any such label is that of a *being* having *supernatural* or *superhuman* or *supertemporal* or *superspatial* attributes. Super in this context always means *beyond* or *greater than*. There are three separate cognitive concepts needed here. They are separate concepts, and each is a prerequisite for, but does not necessarily lead to, the next:

1. The recognition of some observation of events or patterns being beyond human comprehension,
2. That the events observed are subject to (or amenable to) incomprehensible forces, and
3. The existence of imaginary beings vested with command over such forces.

Gods are cognitive constructs. It is a moot point as to whether they are labelled as gods or spirits or deities. It starts with a brain having some notion of its own limitations and having the ability to conceptualise and distinguish between what is explainable and what is inexplicable. It needs a brain which has a well-developed, inbuilt, curiosity algorithm. What is clear is that a certain threshold level of cognition is needed to conceptualise the notion of things supernatural as an explanation of the incomprehensible. That leads to the emergence of the concept of supernatural forces then being responsible for things observed but inexplicable. For a brain with imagination, it is then a relatively short cognitive step to imagine that such supernatural forces could be vested in imaginary beings not too far removed from our own image (as the most advanced beings we are aware of). A grand label gives gravitas to an imagined being who can then be imbued with just the necessary magical attributes to elegantly explain the otherwise inexplicable. It can also bring an end to the never-ending whys generated by curiosity. A god-being with magical powers serves this purpose very well. But the acknowledgement of incomprehension and the need for incomprehensible forces must come first.

We need to travel into distant pre-history to find when these gods might first have been invented. At some point in our distant past our ancestors must have achieved this cognitive threshold. An emotional need to explain the surrounding world – also a cognitive characteristic – gave rise to the need to explain the inexplicable and invent supernatural gods. It must have happened sometime after hominids split from chimpanzees (6 m years ago), long after fire had been controlled (1.5 m years ago) and some time after the big brain had evolved (1 million years ago). The ability to conceptualise a god requires also the ability to label the concept. This probably takes us to a time after spoken language – even if quite primitive - had appeared (c. 500,000 years ago). It was language which enabled lies, allowed the description of things not real and thus freed human imagination. By then hominid groups and tribes and clans had achieved a much higher level of social interaction than is seen in apes and monkeys today. It is not at all implausible that Neanderthals had spoken language and they might have had gods and even religions. They certainly had large enough brains and, presumably, a high enough level of cognition. Regardless of which hominid species was involved, the first god was surely invented by an imaginative individual, albeit within a functioning society, rather than by a committee. It is not unlikely that the very first god ever conceived of, probably by a *homo erectus* individual, was a Sun-god. For our ancient ancestors, the very act of living was so utterly dependent upon the Sun that the invention of a Sun-god must have preceded, quite logically, any other god (including the god-of-existence or a god-of-creation). A sun-god was probably invented many times by many different people. It could have been a hunter desperate for good weather or a gatherer desperate to escape the scorching sun. Or it could have been a primitive farmer suffering from a drought praying to a sun-god to allow the rain-gods to play. It would then have been a relatively small step in cognitive terms, to develop a pantheon of gods magically

controlling the moon, the winds, the seas and the mountains. To vest magical powers in imaginary beings was just a reasonable cognitive trick to enable human brains to contemplate the inexplicable. It followed that when the Sun and all the physical elements were considered to be controlled by inexplicable, trans-human (superhuman, supernatural, transcendental) powers, then that such powers could – quite logically – be prayed to, appeased, enraged or placated. It is a larger cognitive distance from the invention of the gods of physical things (sun, moon, winds, oceans, mountains, climate, ....) to inventing the gods of more complex, abstract things such as existence or creation or the after-life. The sophistication and complexity of the gods merely reflects the level of cognition available to the inventors. But in every case the three cognitive steps were necessary:

1. incomprehension, followed by
2. the invocation of supernatural forces, and
3. the vesting of supernatural powers in an imaginary being.

Gods are named in the earliest recorded histories available to us (the oldest known possibly being the sun-god *Aten* in ancient Egypt around 4,000 years ago). By this time in the evolution of human cognition, the concept of a supernatural god was already well established, but it was entirely a human concept emanating from human cognition (or more accurately from the limits of human cognition). No gods were needed or ever invented for anything that was normal and could be explained. The gods, when invented, were as solutions to great mysteries which needed the supernatural to make sense of the answers. These speculative answers were then *humanised* and made tractable by assigning supernatural powers to *beings* in our own image. There are those who would claim – even today – that the gods were a dawning realisation and that they were acknowledged or “discovered” rather than invented. But the simple reality is that for a brain having no capability for the conception of a god, there are no gods. So, even if “discovered” the discoveries were never anything more than mental constructs in the form of invented assertions and indistinguishable from fiction. Around 1,000 years ago we stopped assigning incomprehension and incomprehensible forces to new, imaginary beings. Instead, humans felt sufficiently sophisticated to start using abstract concepts instead of imaginary beings. *Nature*, the *Cosmos*, *Mother Earth*, *Theories*, *Evolution*, *Rationalism* and *Gaia* were some of the god-labels which replaced the use of imaginary beings as depositories for supernatural and superhuman qualities.

## **and are still being invented**

The invention of gods is not something confined to the distant past. We still do it. As knowledge expands the interface with the unknown and the unknowable also expands. We reach the inexplicable and invent labels for things which are imbued with special

characteristics and which do not have to comply with the usual laws of the universe as we understand them. *Abnormal* or *singular* or *random*, we now say, and pretend that *abnormal* does not mean *supernatural*. We conveniently forget that *random* must be without cause and can have no place in a causal world. Whenever a god-label is invented the concept merely reflects the level of knowledge (actually ignorance) of the day.

The process of science invents many, many gods, but God forbid that they be considered gods! The Big Bang, the concept of space-time, gravitation, the uncertainty principle, quantum entanglement are all speculation at the edge of comprehension. It all begins, they say, with a Singularity where, of course, the laws of nature do not apply. A supernatural Singularity then. They are invented god-labels to which we assign special, beyond-our-comprehension characteristics. Black Holes are supernatural where the laws of physics are suspended. Black Holes and worm holes in space are as much fiction as any ancient god. Dark energy and dark matter have just the right characteristics to explain away the inexplicabilities in the expansion of the universe we think we have observed (but even that observation is not unchallenged). Dark energy and dark matter are effectively fudge factors to make apparent observations fit a *Theory*. A *Theory* is a label not unlike a *God*. We still have no clue as to how gravitation or light or magnetism are mediated across what we perceive as space. We know that magnetism works but creating the label of a magnetic *field* allows us to pretend that we understand. But we still do not know why it must be that magnetic force is mediated across space. We invoke invisible gravity fields and electromagnetic fields and the magic of space-time. All these fields are just labels to which magical properties are assigned. Why does the ball fall? Gravity we say but have no clue as to how that force is transmitted to tell the ball which way to move. Why does the Earth orbit the Sun? It is the curvature of space-time we now say which is manifested as gravitational force. The earth moves along the path of least resistance in the space-time distorted by the Sun and the Earth. But we still have no inkling as to why that path must be followed at all. Or what compels the purported distortions. There can be no motion without time or is it that there is no time without motion? The God of Space-Time has replaced the Gravity God, but what compels the God to be?

There are many theories (and all are imagined gods). There are string gods and particle gods and wave gods and God-particles which are intertwined into theologies to suit the theories. In the 21<sup>st</sup> century, god-making continues unabated, but we are too sophisticated to need imaginary beings in whom to vest supernatural powers. Imaginary, romanticised, abstract conceptions of *Sustainability*, *Biodiversity*, *Democracy*, *Humanity*, *Human Rights* and *Science* are variously accorded divinity and superpowers. But we are still unable to comprehend why *existence*, or *causality*, or *time*, or *life* must be. Perhaps we never will or perhaps we never can. We have no clue as to the questions to which the Big Four mysteries (existence, causality, time, and life) are answers to. Our

cognitive abilities are limited by our finite brains and by our few, albeit artificially extended, senses. Neither physics nor cosmology can address causality or time which are then glibly taken to be fundamental, self-evident assumptions. “Self-evident” is the euphemism we use for “it is, but I have no clue as to why it is”. None of our sciences can even begin to tell us why things exist or when life comes to be. Biology comes into play only once the fact of life is accepted. Evolution is a result but to what purpose, if any, is unknown. There may be no purpose, say some, except to follow the laws of the natural world and causality. But what compulsion requires the laws to be followed and for time to flow? Rather than resort to imagined beings, such “irrelevancies” are left to metaphysics and philosophy and theology - which are themselves just labels for areas of incomprehension. They are all areas which are impenetrable to our limited cognitive abilities. The Big Bang theory is just another Creation Story, a God of Origin. When modern science invokes Random collisions or Random mutations or quantum entanglement it is, on the one hand, denying causality (because anything truly random must be without cause), and, on the other, that causality must apply. For random to be possible, causeless action must also be possible. But causeless action is impossible - or is it? What, (or who), determined that cause had to precede effect? God is always just a label for something that, to our limited comprehension, seems, in our time, to be without cause.

Human cognition has two fundamental aspects; a logical reasoning part for one and the generation of emotions for the second. When we develop concepts, we use both reason and emotion. We usually overlook the little matter that we have not the faintest idea why *logic* and *reason* exist at all. The invention of gods or the Big Bang are a reasoned, human reaction to inexplicability. Inexplicability in itself is a consequence of the limits to human comprehension. Curiosity and the drive to know or explain emanate from the emotional part of our cognition. It is this insatiable curiosity which creates the need for explanations; for gods and Nirvana and Big Bangs and space-time and dark matter. The observation of inexplicable patterns in the surrounding world together with the human need to explain such patterns (or lack of expected patterns) gave us our gods. And that is evident even today though modern gods are disguised as “Theories”, whether of existence or time or creation or uncertainty. There was a time when individuals and families and clans each had their own particular gods. The first invention of gods, then, must take us back several hundred thousand years. But the invention of gods continues. The process we call Science needs its Gods.

Gods are cognitive constructs, invented by individuals and reflect the incomprehensibilities of their time. Gods are still being invented today. There is still heresy abroad in the world. Whereas it was once heretical to question who created the One God, it is now heretical to question what came before The Big Bang. Where once anything without cause was either divine or devilish, Random Event is now the go-to god

of science. The curious thing is that beliefs in the old gods are always considered heretical by the high priests and acolytes of the new gods.

## **And religion is just politics,**

Politics is the process of influencing human behaviour within societies.

It is sometimes argued that the origin of religions lies in ritual and tradition rather than faith or gods. No doubt rituals began while we were still pre-hominids. It is not implausible that the earliest rituals were food rituals in the context of social eating. Even animals follow rituals of precedence when eating socially but they have no capability to conceive of the supernatural. For religions to develop the cognitive concepts of incomprehension and the supernatural must have first taken hold. Gods are merely labels for the supernatural and the concept of explaining the inexplicable by invoking the supernatural comes long before any organised religion. While gods are created by individuals, organised religions can only be created within societies. Morality and religion are related but are different things. They can only emerge in a social context. Absolute morality is a contradiction in terms. Every religion in the world, whether based on gods or spirits or the search for the ultimate, is about controlling or influencing the behaviour of individuals within a society. Organised religion is always, like all other social constructs, also about creating identity by separating “us” from “them”. Identity, of course, is fundamentally about discrimination. The cognitive ability to discriminate, to tell good from bad, is another defining human characteristic. However, the idea that a religion emerges spontaneously in a community from shared beliefs is a myth. Belief emerges in individual cognitions, not in, or from, some imagined group consciousness. Religion is not a child of belief but of an urge to influence the behaviour of others. The beliefs may well be real but they are just a tool. Just as morality and moral codes are also tools used for influencing social behaviour. Religion is about influencing behaviour and provides the framework to then invoke and apply moral codes. An organised religion is never actually about the beliefs it espouses but about the use of such beliefs to guide, influence and control human behaviour. Guiding or controlling or influencing human behaviour is, by definition, politics. A religion is a societal construct and is created – always – for political purposes. Every religion distinguishes between believers and non-believers; us and them. Every religion seeks to influence behaviour. Every religion has a political purpose. And history tells us that the development and growth of human society, and the achievements of human societies, have much to thank organised religions for.

It does not require much imagination to see that whereas an individual – with sufficient brain – can come up with the notion of a god, it needs an organised, interacting society for a religion (or morality) to emerge. It is said that whereas the Dunbar number for chimpanzees is about 45 it goes up to about 150 for humans. Chimpanzees have some

cognition but not enough to have any clear notion of the supernatural or of a god. Chimpanzees do not either have sufficiently large brains or sufficiently organised societies within which diffuse notions of divine powers – if they exist at all – can become a religion. Religions need an organised, interacting society to exist in, but they also reinforce that society with behavioural codes and provide the chosen with identity. The most ancient forms of religion probably developed when humans had developed clans and tribes with populations exceeding about 150 people. It is quite plausible that this is when the roles of shamans and prophets and priests and disciples and acolytes first developed. Given a belief in gods, the notion of having privileged individuals as mediators between normal humans and their gods is perfectly logical but entirely about an exercise of social and political power. Religions and their priests would have appeared long before the Neolithic but probably within the last 100,000 years. However, it seems very likely that the growth of the earliest organized religions within communities is tied to the growth of agriculture, of settlements, of cities, of population and of societal rules. It was a political phenomenon. The spread of religions across communities was then primarily for, or by, trade and conquest. That too was a manifestation of political power. Religious conversions, in the past and still today, are all exercises of political power.

Organised religion is not primarily about belief but about the exploitation of beliefs concerning the inexplicable. It is always about influencing and controlling the behaviour of individuals within societies.

Religion is politics - always.

And when *Science* becomes a religion, it is also just politics.

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**“When you are a Bear  
of Very Little Brain,  
and you Think of Things,  
you find sometimes  
that a Thing  
which seemed very Thingish inside you,  
is quite different  
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*A. A. Milne*

