

Nature and Divinity: the impact of science on the concept of God

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Most students of philosophy come across, some time or other during their studies, the famous argument associated with that intimidating word ‘cosmological’. The cosmological arguments, because, I’m afraid, they are many, draw on a specific aspect of the universe and then proceed to demonstrate that God exists. St. Thomas Aquinas famously left a crowd of prominent philosophers after him rather perplexed because he proved the existence of God from the brute facts of permanence, change, reality and order – all neatly accomplished in a few short paragraphs. Apart from that, St. Thomas didn’t want to affirm much more about God. According to him, philosophy can only help us conclude that God exists. Anything else about how God must come from Revelation.

Although you may not expect this from a lecturer of the Gregorian University, I would like today to distance myself from St. Thomas; but – nothing to worry about – this will not be a head-on collision. I will not disagree with him as regards the possibility of concluding something true about God other than that God exists. I will just sidestep this question by concentrating on what he set aside as a marginal issue, namely the question about what determines our spontaneous, initial ideas about God. What comes first in people’s minds when they hear the word ‘God’? Not many are like St. Anselm, who seemed to have been so ontologically trim that his very first idea was that of a being greater than which nothing can be conceived. Perhaps some are like Aquinas himself, who, considering Anselm’s idea rather ontologically unreachable to the common person, seemed to have thought that the first idea is practically always God the Maker of the Universe. The spontaneous ideas people of today associate with the word ‘God’ are mostly erroneous, I

now. They are, nevertheless, very important. If we are to lead people towards the truth, we need at least to know first where they are.

My proposal therefore is to explore with you how the dominant mentality of today determines some distinct features of the popular idea of God. I will take it as a fact that the dominant mentality of today is based upon, or intimately related to, technology and the natural sciences. Even in countries where the majority of the population has a rural way of life, the younger generations are being educated within the framework of these disciplines. Technology and natural science have shown themselves very versatile. They can make themselves at home in universities irrespective of the local cultures and traditions, whether in Harare or London or Tokyo. I will therefore pick out the two most significant world-views associated with this mentality and try to discover the implications for the idea of God. The first world-view is the one associated with mechanism, the second with evolutionary biology.

The Mechanistic world-view

Rather than engage in a historical study of the rise of the mechanistic world-view, I would like to start by pinpointing its one fundamental characteristic. I will not hesitate to refer to this by one word: predictability. It does not take much to realise that many of the changes and movements in Nature can be predicted to a certain extent. This suggests that Nature does not order its own movement, like a person who can decide how to act. It suggests that Nature manifests a kind of regularity imposed upon it by some extrinsic laws. One can understand, therefore, why philosophers like René Descartes saw Nature as a great machine with an intricate arrangement of parts, each part with a particular function, the whole designed and ordered for a definite purpose by an intelligence outside Nature itself. Descartes says, in his book *Discourse on Method*, that the world can be treated as a

mechanical system, and there is no need for introducing any but efficient cause. Final cause is, according to him, a theological concept. Even the dexterity of animals ‘shows rather that they have no reason at all, and that it is nature which acts in them according to the disposition of their organs, just as a clock, which is only composed of wheels and weights, is able to tell the hours and measure the time more correctly than we do with all our wisdom.’¹ On this mechanistic view, the origin of movement and change is not intrinsic to Nature. Nature as a whole, therefore, has no soul, in the Platonic sense. It is dead, as dead as a car without the driver.

Although the mechanistic view of Nature is not the one underlying today’s scientific theories such as Quantum Mechanics, it still dominates the technological mentality. It has some clear advantages over some other world-views. Consider, for instance, the so-called animistic world-view. This has it that Nature is allegedly the place where various non-human minds or spirits express themselves. One finds here a parallelism between, on the one hand, explanations concerning the movements of our bodies and, on the other hand, explanations concerning the movements of the various parts of Nature. We account for most of the movement of our bodies by alluding to purposes, goals or reasons. What we do is often a realisation of what we want. We thus identify the inner self, or will, or soul, as the initiator of action. Followers of animism try to explain the movements of the various parts of Nature by modelling on this intentional explanation. They postulate the existence of intentions in Nature. Parts of Nature, like the atmosphere or the sea, would thus be said to move because they want to. A tempest, say, is explained by holding that the sky is angry, or perhaps by claiming that the sky is bent on punishing someone. If one holds that the various parts of Nature have wills and purposes in their own right, one needs to be careful. One needs to avoid irritating some spirit lurking somewhere unexpected. This is quite important because such spirits often seem to have more power at

their disposal than humans. This, as we know, has given rise to all kinds of attempts at controlling these spirits or personal powers. Magic can be seen as a way of trying to appease such spirits and to invite them to collaborate in a desired way.

As a general explanation of the world, this animistic world-view leaves a lot to be desired. Saying that *all* kinds of motions around us are the direct result of some personal desire is a naïve exaggeration. There are certainly some processes in the world that are regular and predictable. The mechanistic world-view concentrates on the regular aspect of the world while the animistic world-view concentrates on the seemingly personal aspect of the world. The former has an obvious advantage. It enables us to predict changes around us with some confidence, and thus gives us more security and power over our own destiny. The latter, on the contrary, leaves us at the mercy of a world of spirits beyond our understanding, sometimes tentatively described in fabulous narratives about gods and spirits trying to outsmart each other, sometimes with disastrous consequences.

It is understandable therefore why people immersed in the mechanistic world-view show little respect towards mythology in general. They consider it a kind of fossil of previous intellectual endeavours, now extinct. In this they are mistaken. Their mistake lies in the link they think exists between myth and world-view. They think that a myth is an attempt at describing the world, somewhat like a rudimentary scientific theory that we now know is incorrect. Practically all scholars admit now that myths are nothing like that. Scholars like Mircea Eliade and Ernst Cassirer show how myths are not theories meant to describe. They are grounded on a mental attitude completely different from what we now call the scientific mentality.² Myths are grounded on a lived experience and express deep desires that are often religious, moral, or social in nature. They are meant to teach how to live well. They are more like mirrors in which people can see themselves, and less like lenses through which people see the fine structure of the world.

I will mention three major cultural consequences of the mechanistic view. First, as was mentioned above, the mythic element of human discourse, together with the general poetic dimension of which it is a part, loses much of its respect. A society centred on the predictable aspect of the world, in its very search for knowledge of the relevant laws, tends to forget how to teach wisdom. It tends to avoid teaching anything about what to do with the knowledge one gets.

Secondly, since the world is seen as a machine, a knowledge of the laws governing the various parts will give us, if put together, an allegedly complete knowledge of the entire system. Every tiny detail will be part of the clockwork. As we can now do with eclipses, we will be able to do with all other changes. Everything would be determined according to the laws. It was Pierre-Simon de Laplace who put this point forward most forcefully for the first time in 1820, in the introduction to his *Essai Philosophique sur les Probabilités*. He thought people would soon arrive at determining all things in the future as much as in the past. Needless to say, he got carried away. We haven't got anywhere near that stage.

The third consequence is that the world, or Nature, is not alive. It cannot feel angry, joyful or vindictive. People therefore cannot deal with Nature with an attitude of friendly or respectful co-operation, as if Nature were some super-person, or partner in a contract. On the contrary, one is encouraged to have an attitude of exploitation: seek to control Nature so as to extract from it whatever is in one's own best interest. If we are radical supporters of the mechanistic world-view, we would see those parts of the world that seem quite idle and isolated, like clumps of trees on uninhabited hills, as lacking any function in the overall running of the entire clockwork. They can thus be disposed of for our use. The results, however, are often devastating. In this example, as is now known, soil erosion will occur and the hills will remain forever barren. Climate may also be affected. Whether there

will be other effects is still unknown. In discussing such cases, the basic assumption that Nature is a machine, pushes us gently but steadily towards taking the immediate human interest as the *only* point of relevance.

What are the effects of this world-view on the spontaneous ideas people of today associate with the word 'God'? This question is relevant even though such ideas can be mostly erroneous. As I said before, if we are to lead people towards the truth, we need at least to know first where they are. If immersed in a mechanistic view of the world, where are they as regards the idea of God?

It is not difficult to see that God would be identified with the driver of the big machine, the overall operator. At least two good points result from this. The first is that the workings of creation, when known in some of their detail, can be even more appreciated. God, therefore, is the more present to us, as it were, the more evident become the intricacy of the workings of nature. The second point is that the sovereignty of the one God, as a good and intelligent craftsman, is safeguarded against the opposed belief – namely the belief that the powers governing creation are multiple, disorganised, and oppressive. Moreover, if this good and intelligent craftsman is not distant from us humans but very close, close enough to be addressed by the term 'Father' – this, of course, is the unique Christian contribution – then the power this gives us to overcome fear is considerable.

Does the idea of the master designer and controller of the great machine correspond to the God of the Holy Scriptures? This is an important question. There are certainly some worrying consequences awaiting us if we take this image of God as normative. The clearest one perhaps is the neglect of certain fundamental characteristics of God that cannot be incorporated in the mechanistic model, for instance the idea that God created out of nothing and that God is absolutely distinct from all creation. The mechanistic temptation is to think that an explanation of the mechanism is an explanation of God himself. The

temptation is to hold that we are discovering things about God more than there ever were included in the Bible. The temptation is to hold that we are conquering slowly but surely the divine mystery, the region that used to be considered forbidden ground. The mechanistic world-view often engenders a caricature of God, a God of the gaps, a weak God forever retreating as his unruly creatures creep up towards him and uncover, what we may call, his industrial secrets.

The Evolutionary world-view

The mechanistic world-view is particularly attractive because of its ability to deal with the aspects of the world that are clearly regular and repeatable. There is no guarantee, however, that all the regular aspects are easily discernible. Most regular changes we deal with are evident within a time-scale measured in units of hours, days or years. What happens if we change the measuring rod? What happens if we start measuring time in units of millions of years? This is where the evolutionary world-view takes over.

Since this evolutionary world-view has gained enormous support from the theory of biological evolution, it is natural to start with a quick look at this latter theory. A full account of this theory cannot be presented here. Let us recall some of its major points only. In the biological world, we can observe, among other things, that the anatomy of various species often exhibits structural similarities among certain parts: for example, the wing of a bird, the wing of a bat, the arm of a human. Moreover, very small embryos of various different kinds of animals are very similar to each other at the beginning of their development. These observations strongly suggest that different groups of organisms have descended from common ancestors. The basic assumption here is the same assumption underpinning our entire cognitive interaction with the world, namely that the world makes sense, or that, as the Greeks used to say, it is a cosmos and not a chaos and that it is

worthwhile looking deeper to uncover the hidden order. Seen within our immediate scale of time, say within a number of centuries, the forms of the various species of animals seem stable and quite different from one another. But if, as was suggested above, our time scale is enlarged so as to consider millions of years instead of centuries, things look different. A certain unity that was invisible before starts becoming visible.

How do the differences between the various species of animals come about? How can this be the result of modifications over billions of years? The first interesting reply came from the work of Charles Darwin.³ His basic suggestion was that the process that explains the development, the appearance and disappearance of the various biological organisms is 'natural selection'. To understand the term 'natural selection', one may consider the example of a herd of zebras. The point is to see how zebras can change as a *species*. Notice that the question is not how individual zebras change. On the contrary, the question concerns what Aristotelians are inclined to call the essence 'zebra' – what makes a zebra a zebra.

For a change to occur, the first condition is that zebras must have some trait, or characteristic, that can experience some random variations. In the real case of zebras, their running-speed is such a trait. The running-speed of some zebras may be higher than others. The distribution is completely random. The second condition is that zebras must have some kind of constraint directly related to this particular trait. In actual case, the constraint is their predator. It does make a difference for zebras whether they are fast or slow. The fast ones, on the whole, have higher chances of surviving than the slow ones. The third condition for an evolutionary change is that this trait in zebras, namely running-speed, is capable of being passed on from parent to offspring. In other words, it must be a hereditary trait. If these three conditions hold, as in fact they do for zebras, then the average speed of zebras will increase in successive generations by natural selection.

This simple example does not show that zebras change into something else. It shows only that zebras change from slow to fast. The theory of evolution extrapolates from this simple scenario to include the totality of organisms on the planet. In this sense, it is a very ambitious theory. It holds that all the different forms, and all the various kinds of specialisation, we see in the organic world can be explained in the same way as the increase in the running-speed of zebras. There is however a price to pay for this extrapolation. Today's organisms are very different from each other. Therefore one must assume that the time period for such development must have been very long indeed, in fact, most specialists nowadays accept that, if natural selection is the only mechanism involved, the time period must be impossibly long, perhaps longer than the age of the entire universe – which presents us with a problem. Henri Bergson, in his book *Évolution créatrice*, argued convincingly that, a serious study of an organ such as the eye of vertebrates shows that any explanation *in terms of natural selection only* is deficient. Any improvement of the eye that secures its possessor with an advantage must be a complex of countless co-ordinated changes within the various parts of the eye. Any change in just one part would be detrimental to the whole, while a co-ordinated change would mean an advantage. Much more than natural selection is needed to explain this co-ordination. Let me recall, however, that this point does not show that natural selection is irrelevant. It shows that natural selection is not the total explanation.

This is a biological theory. The evolutionary world-view is broader than this biological theory. Change and development take a central stage, this time not only for living things but also for everything – down to the very ontological fabric of the world. The world is seen as flux, and the basic unit is something other than Aristotle's substance. Alfred North Whitehead has spearheaded this evolutionary world-view by constructing an

ontology based on process rather than on substance, formulated especially in his work *Process and Reality*.

Such a world-view is much more refined and complicated than my brief description suggests. Nevertheless, one may already appreciate the novelty it introduces into our cultural and social landscape. Two main aspects of this novelty will be mentioned here. The first aspect concerns the place of you and me. The theory of biological evolution aims at explaining all organisms. Since humans are biological organisms, they also fall within the explanatory range of the theory. In other words, the theory is holding that human beings, just like other species, have originated through the process of natural selection. As is well known, this discourse about human origins gave rise to many heated debates, which in some countries linger on till this day. The biblical account of creation is sometimes quoted against the claims of the theory of evolution. Different kinds of argument, and different kinds of explanation are often mixed up and entangled. Some basic guidelines can help to avoid confusion.

First, the fact that natural science has come up with a theory that aims at explaining humans as well as other organic species does not in itself show arrogance on the part of natural science. In as much as humans are physical beings, they are explained by physical laws. For example, if dropped from a high place, sticks, stones and humans all fall towards the ground with a constant acceleration. On our planet it is 9.81 meters per second per second – for all physical objects. Such an explanation does not imply that there is nothing more to human beings than sticks or stones. It just says that, as regards some specific physical properties, sticks, stones and humans behave in a similar way. The fact that the theory of biological evolution explains some aspects of human beings, therefore, should not be taken to prove that humans are nothing but material organisms. If we say that, we would be just as wrong as we would be when deducing from the free-fall example that

humans are nothing more than sticks or stones. What this theory of biological evolution is attempting to do is to obtain a clearer picture of how humans fit in within the overall picture of Nature. As such, this aspiration is as old as human thinking itself.

The second aspect of the novelty introduced by the theory of evolution concerns design. Does the theory of evolution show that the order we see in Nature is not the result of intelligent design but of random forces alone? This question gave rise to many intense disputations, especially because an affirmative answer could be interpreted as science scoring a point against religion. Some philosophers of religion had used the order of the universe as the basis of a proof that God exists. If protagonists of the theory of evolution are saying that this order is just a random outcome, then at least one proof for the existence of God seems to be made redundant. The question however is: does the theory include only blind chance? The reply is no. As was mentioned earlier in the zebra example, the principle of natural selection is based on a heritable trait that not only undergoes random variation, but can also be retained because of its relevance for survival. Hence, for the overall evolutionary explanation to start working, one needs an aspect of random variation together with some criteria of retention. These criteria apparently depend on the environment where life is evolving, and also on the internal stability of the ensuing organism. Why some combination of traits are desirable or even compatible, and why some other combinations are undesirable or incompatible, is not, according to the theory, a matter of chance.

One observes moreover that the reason why life, in general, seeks to survive is not included within the explanation. That it is so is taken as a given. The theory tells us how organisms may change so as to survive. It does not tell us why there such a thing as life that wants to survive in the first place. The picture we perceive is an astonishing confirmation of this drive towards survival. The basic assumption is that there is a

tendency for life to expand, to fill in all the available spaces in the liveable environments, including those created by the process of that expansion itself.

What can one say about the implications of this evolutionary world-view on the concept of God? I will begin by mentioning a positive point. Put simply, the evolutionary world-view can make people even more appreciative of God's resourcefulness and originality than they were before. It can make people think of God as originator not only of the order we see in small-scale changes that are easily observable, but also of the other changes that can only be conceived by considering very long periods of time. There is a new order that becomes visible, and for this, as some of us would say, praise the Lord! Interestingly enough, this is not far from the attitude of Charles Darwin himself. He finished his famous book of 1859 *The Origin of Species* with the following verses:

There is grandeur in this view of life, with its several powers, having been originally breathed by the Creator into a few forms or into one; and that, whilst this planet has gone cycling on according to the fixed law of gravity, from so simple a beginning endless forms most beautiful and most wonderful have been, and are being evolved.

There are however some negative implications of the evolutionary world-view. The history of Darwinism, the story of its own progressive refinement and evolution, shows that this idea can transform itself into an ideology. To appreciate this point, it is useful to recall what we mean by 'ideology'. An ideology is a collection of beliefs and values considered important by an individual or group. It determines what the individual or group considers valid knowledge and desirable practical ends, often without the individual or group being aware of it. Ideology often determines the group's interests to conserve a particular world-view, or a particular political or economic system. It is not difficult to see why some philosophers, such as Herbert Spencer, saw the evolutionary world-view as a priceless ally to the ideology supporting a completely liberal capitalist society wherein the

death and disappearance of the poor are *natural* occurrences. He expected society to move towards 'the industrial type of society', in which the biological struggle for existence becomes 'the industrial struggle for existence'. In this struggle, he writes, society must produce 'individuals best adapted for life in the industrial state'.⁴ The mishaps of those who are not among the fittest are an inevitable part of the life of humanity. That is how things are. There is nothing else to do about it. This ideology uses the evolutionary world-view for its own ends. It helps it boost up the idea that humans must respect how nature itself is. They must therefore always act in a way that resonates with what has been discovered in the biological world, a world 'red in tooth and claw'. They must act only in their own interest; they must desire to survive at all costs and leave the weak to die a natural death.

It seems to me that a new version of this emphasis on blind survival of the fittest within the human family is becoming evident in some recent trends in philosophy, often referred to by the term 'post-modernism'. Influential thinkers like Jean-François Lyotard have been trying to show that the days of the grand narrative, of the overall valid philosophy, are over. Instead of one central idea of culture, valid for all situations, we must now acknowledge a multiplicity of cultural fragments. Although there are various positive aspects one can mention about post-modern thought, one cannot overlook a grey area that is fast becoming problematic. Post-modernists have been trying to impress their supporters by bashing that deplorable monster: cultural colonialism. The bashing, however, is getting out of hand. The pendulum is swinging to the opposite end now. Their ideas have gone too far. From cultural colonialism we seem now to be swimming in a kind of cultural apartheid. Each culture has its own 'truth'. Impenetrable walls have been built between peoples. From the trend to level down all cultural variety, we have moved to the opposite trend: promoting cultural isolationism. Each cultural fragment needs to prove its mettle or

die a natural death. Yet again, the dictum reappears: that is how things are; there is nothing else to do about it.

In such a world, what comes to mind when the individual is asked about God? If the evolutionary world-view is grafted into the ideology just mentioned, God will have a very small role to play. Perhaps God would still be associated with the Maker of heaven and earth, yes; but He seems to have forgotten where his evolutionary world is heading. He doesn't seem to care about the poor man who suffers innocently. Or perhaps, as Friedrich Nietzsche suggested, God may be dead, and we have to start looking for ways of living without Him. These are, unfortunately, the basic ideas that flow naturally from the evolutionary world-view, when wrongly applied to human living.

It doesn't take much to realise that the Christian message sounds very strange, even dangerous, to people immersed in such an ideology. Christians, who genuinely follow their Founder, view God in another way. Their idea of God, as Father, gives them power precisely to be able to avoid living according to the law of the jungle. They seek instead to help the weak, thereby breaking the law of the jungle so as to live according to another law, the law of charity. They avoid letting themselves be dominated by unbridled competition, as one sees in the jungle. Instead, they leave the racecourse to take another path, the one taken by Jesus of Nazareth.

My original idea was to explore with you how the scientific mentality of today determines some distinct features of the popular idea of God. I have discussed the two most significant world-views associated with this mentality, namely mechanism and evolution. Some of the implications for the idea of God were positive, others negative. As regards the mechanistic world-view, one positive implication was the fact that the workings of creation can be more appreciated when known in some of their details. The negative implication was that mechanism tends to make people consider God as a

retreating figure, a God of the gaps. As regards the evolutionary world-view, the positive implication on the concept of God derived from the fact that this world-view tends to make people think of God as originator not only of the order we see in small-scale changes but also of the other changes that can only be conceived by considering very long periods of time. There is new order that becomes visible. On the negative side, I tried to show that the evolutionary world-view can lead people to see God as insignificant in a world of blind chance where the only natural thing to do is to live and let die.

I believe these ideas about God are embedded and hidden in most people's minds, especially those very influenced by scientific and technical environments. I think St. Thomas Aquinas would agree with me that, for these people, who aren't few, a conversion towards the true image of God has to start from here.

¹ *Discourse on Method* (original 1637), part V. Descartes, Galileo, Newton and others used the term 'mechanical philosophy' to designate their disagreement with Aristotelian substantial forms as explanations. They differed about certain details, such as the possibility of a vacuum and the nature of atoms.

² Cf. M. Eliade, *Myths and Reality*, NY 1963; E. Cassirer, *Philosophy of Symbolic Forms*, new Haven 1955, vol. 2; B. Malinowski, *Myth in Primitive Psychology*, in: *Magic, Science and Religion and other essays*, NY 1948.

³ Not all the details of Darwin's theory are accepted by scientists today. What is known as the 'new synthesis' refers to the integration of Mendelian genetics and Darwinian ideas on selection. For a recent review of the Catholic Church's position as regards biological evolution, see: Pope John Paul II, *Message to Pontifical Academy of Sciences* October 22, 1996, <http://www.cin.org/jp2evolu.html>

⁴ Herbert Spencer, *Principles of Sociology*, London 1876-1896, vol. II, p. 610.