THE CHURCH IN DIALOGUE WITH NEW SCIENTIFIC ATHEISM

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HOW SHOULD THE CHURCH[1] respond to the new scientific atheism proposed by leading scientists such as Richard Dawkins and, latterly, Stephen Hawking? Is it a matter of science to be discussed only among scientists? Or should the Church seek to challenge the philosophical assumptions that underpin it? I should like to argue that the Church has a vital role in widening the horizon of the debate surrounding the new scientific atheism and questioning the coherence of its presuppositions.

The problem at the heart of the new scientific atheism is a failure to address the origin of the reason and intelligence that underlie and sustain the universe. Stephen Hawking and Leonard Mlodinow's recent book *The Grand Design* (which I shall be treating as interlocutor for this discussion) asserts that the fundamental question of reality is why the laws of nature are what they are and are not otherwise.[2] By asking this specific question, Hawking and Mlodinow avoid the truly fundamental question, namely, why there are laws of nature at all. The issue at the heart of my discussion here is not why there is something rather than nothing. It is, rather, a search and a demand for congruence within intellectual discourse. Can laws of nature arise from nothing, or do they presuppose or necessitate a lawgiver or creator?

Einstein's Religion

I shall begin by considering what might be called 'Einstein's religion'. A professed agnostic, Einstein rejected the concept of a personal God

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[1] The term 'Church' is used here in the widest sense as the body of Christ, as those who believe in Jesus of Nazareth as the Son of God.

[2] Stephen Hawking and Leonard Mlodinow, *The Grand Design* (London: Bantam, 2010).

as taught by the Judaeo-Christian tradition, particularly disliking ideas of God as a God of fear, as the arbiter of social or moral rules and as an anthropomorphic Being.[3] In contrast, he adopted a religious attitude in response to the laws of nature. Einstein's religion lay in his awe of the logical simplicity, order and beauty of the natural world.[4] He described this religious attitude as follows:

> A knowledge of the existence of something we cannot penetrate, of the manifestations of the profoundest reason and the most radiant beauty, which are only accessible to our reason in their most elementary forms—it is this knowledge and this emotion that constitute the truly religious attitude; in this sense, and in this alone, I am a deeply religious man.[5]

Neither believers nor atheists can call upon Einstein's views as direct support for their cause. But we can draw on his religion—his belief in a reason that manifests itself in nature—to pursue our enquiry. Einstein's religion relates to his observation of the laws of nature and response to them, through which he perceived that,

> … there is revealed such a superior Reason that everything significant which has arisen out of human thought and arrangement is, in comparison with it, the merest empty reflection.[6]

What is this superior Reason that Einstein perceived in the laws of nature? Where does it come from? Is it an accident? Is it a necessary product of the existence of the universe? Is it the cause or is it a property of the universe? And is the existence of this superior Reason evidence for the Creator of the Judaeo-Christian tradition?

[3] Albert Einstein, 'Religion and Science', *The New York Times Magazine* (9 November 1930), 1–4. This article was reprinted in *Ideas and Opinions* (New York: Crown, 1954), 36–40 and *The World as I See It* (San Diego: The Book Tree, 2007), 24–28.

[4] Albert Einstein, quoted in Banesh Hoffmann, *Albert Einstein: Creator and Rebel* (New York: New American Library, 1972), 95.

[5] Einstein, *The World as I See It*, 5. The quotation continues: 'I cannot conceive of a God who rewards and punishes his creatures, or has a will of the type of which we are conscious in ourselves. An individual who should survive his physical death is also beyond my comprehension, nor do I wish it otherwise; such notions are for the fears or absurd egoism of feeble souls. Enough for me the mystery of the eternity of life, and the inkling of the marvellous structure of reality, together with the single-hearted endeavour to comprehend a portion, be it never so tiny, of the reason that manifests itself in nature.'

[6] Albert Einstein, *Mein Weltbild*, quoted in Joseph Ratzinger, *In the Beginning … A Catholic Understanding of Creation*, translated by B. Ramsey (London: Continuum, 1995), 23.

The question of the origin of the laws of nature is not about religion *per se*, or even science *per se*. It involves a fundamental principle or 'building block' of our reality. It is something in which both religion and science have a profound interest. Although Christianity may identify Einstein's 'superior Reason' with the *Creator Spiritus*, it is important to note that the existence of a creator or lawmaker does not necessarily translate into an affirmation of the God of Jesus Christ. What is also important, however, is that this question of the existence of a superior Reason manifest in the laws of nature has not been addressed by the new scientific atheism. This is in spite of the fact that two of the greatest thinkers, Plato and Aristotle, both attempted to account for the rationality, intelligence and complexity of the world, albeit in very different ways, through the forms/ideas and the prime mover/final causality respectively.[7]

The Grand Design *and the Theory of Everything*

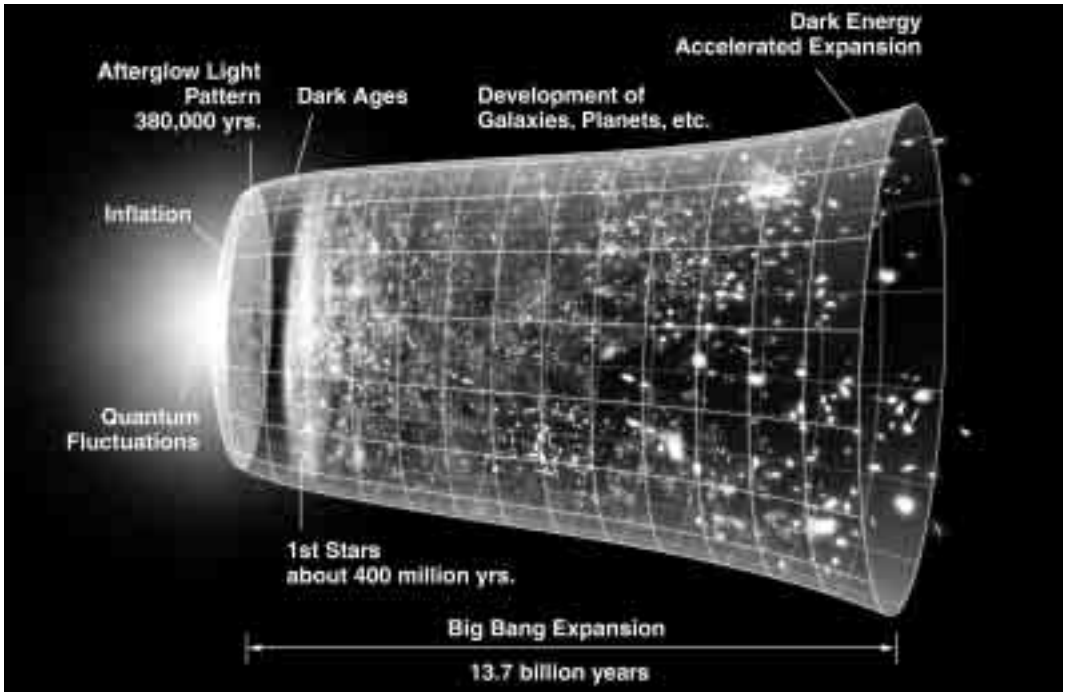
In *The Grand Design*, Hawking and Mlodinow expound 'M-theory', which implies that there may exist multiple universes of which ours is only one.[8] These multiple universes (also known collectively as 'the multiverse') arise not from a God but from physical laws and are a prediction of science. M-theory is, they claim, consistent with Richard Feynman's formulation of quantum theory, and with a model-dependent theory of reality:

> … based on the idea that our brains interpret the input from our sensory organs by making a model of the world. When such a model is successful at explaining events, we tend to attribute to it, and to the elements and concepts that constitute it, the quality of reality or absolute truth. But there may be different ways in which one could model the same physical situation, with each employing different fundamental elements and concepts. If two such physical theories or models accurately predict the same events, one cannot be said to be more real than the other; rather, we are free to use whichever model is most convenient.[9]

[7] Étienne Gilson explores this issue in relation to the theory of evolution in *From Aristotle to Darwin and Back Again: A Journey in Final Causality, Species and Evolution*, originally published in 1971. He challenges the mechanistic approach to science which, he argues, had already been rejected by Aristotle, and maintains that 'the facts Aristotle's biology wishes to explain are still there' (Gilson, *From Aristotle to Darwin and Back Again* [San Francisco: Ignatius Press, 2009], 141).

[8] Hawking and Mlodinow, *Grand Design*, 8.

[9] Hawking and Mlodinow, *Grand Design*, 7.



Timeline of the Universe

A fundamental aspect of Hawking's and Mlodinow's argument is that time and space were indistinguishable in the early stages of the universe. Because time can behave like another direction of space, they assert, time did not need to have a beginning and, hence, there is no need for a Creator God.[10] Gravity is the key to the multiple universe theory they present. According to this theory, gravity enables universes spontaneously to create themselves out of nothing.[11] This is predicated on there being 'supersymmetry' between the forces of nature and the matter they act upon: 'force particles and matter particles, and hence force and matter, are really just two facets of the same thing'.[12]

From here Hawking and Mlodinow go on to assert that M-theory is a complete theory of the universe—the unifying theory that Einstein sought. Their approach is not universally accepted. According to the Cambridge scientist Rupert Sheldrake, some physicists are 'deeply sceptical' about M-theory and model-dependent realism which, he believes, provide 'a shaky foundation' for developing scientific theories.[13]

[10] Hawking and Mlodinow, *Grand Design*, 134.
[11] Hawking and Mlodinow, *Grand Design*, 180.
[12] Hawking and Mlodinow, *Grand Design*, 186.
[13] Rupert Sheldrake, *The Science Delusion: Freeing the Spirit of Enquiry* (London: Coronet, 2012), 11.

Moreover it is reasonable to ask whether a 'theory of everything' developed through physics and science can in fact be a theory of *everything*. In response to the new scientific atheism, Edgar Andrews, emeritus professor of materials at the University of London, reasserts the possibility of the biblical God. Andrews states:

> The scientist's dream is to develop a 'theory of everything'—a scientific theory that will encompass all the workings of the physical universe in a single self-consistent formulation. Fair enough, but there is more to the universe than matter, energy, space and time. Most of us believe in the real existence of non-material entities such as friendship, love, beauty, poetry, truth, faith, justice and so on—the things that actually make human life worth living. A true 'theory of everything', therefore, must embrace both the material and non-material aspects of the universe, and my contention is that we already possess such a theory, namely, the hypothesis of God.[14]

At issue here is what should be included in a 'theory of everything'—should it just concern the material world, or should it embrace what exists outside that world? Defining what should be included in 'everything' will determine the shape of the debate and so is fundamental to it. Indeed, an issue of science is raised by this question. Should a 'theory of everything' explicitly refer to life, to living organisms, and not just to the laws of physics, even if biology and chemistry are presupposed in a physics-generated view of such a theory. These are important issues requiring significant further work which, however, cannot be addressed here.[15]

Hawking's and Mlodinow's methodology of scientific determinism is their starting point—a point prior to which they do not venture. For them the laws of nature have important consequences, since these laws make the universe comprehensible in that its behaviour can be modelled.[16] In their spontaneously created universe, the laws of nature and the matter on which gravity works are simply assumed to exist; their existence is not questioned and no mystery is seen in their source or genesis.

[14] Edgar H. Andrews, *Who Made God?* (Darlington: EP, 2009), 10.

[15] Notwithstanding this question of what would constitute a 'theory of everything', Hawking and Mlodinow acknowledge that the system produced by the laws of nature is extremely fine-tuned so that small changes would, in fact, destroy the possibility of life. They state that: 'Our universe and its laws appear to have a design that both is tailor-made to support us and, if we are to exist, leaves very little room for alternatives' (Hawking and Mlodinow, *Grand Design*, 162). They attribute this fine-tuning to the existence of multiple universes—in an infinite assembly of universes there must, by chance, be one that supports life. By contrast, Andrews would identify this fine-tuning as evidence for God.

[16] Hawking and Mlodinow, *Grand Design*, 87.

Positing the spontaneous creation of the universe through gravity is an attempt by Hawking and Mlodinow to dispense with the question of the beginning. But it fails to dismiss the problem of the origin of the law of gravity itself—together with all the laws of nature and the matter and energy of the universe. The origins of the laws of nature, of the content of our universe (and of any others that might exist), of the hydrogen and helium that emerged from the cosmic singularity of the big bang: these are not perceived by Hawking and Mlodinow to be issues worth discussing. The absence of such discussion is a major gap in their argument.

Intellectual Confusion

The Grand Design gives an overview of the history of scientific thought from which it is apparent that technology and science are interdependent: scientific knowledge depends on technology, and technology advances through scientific discoveries. However, Hawking and Mlodinow give the impression that human progress is linked solely to scientific progress, particularly in their belief that science can answer the fundamental questions of humanity. This idea of science as the provider and source of all answers is both naïve and dangerous.

First, it limits our knowledge of reality to what technology can demonstrate, and thereby links the scope of knowledge to the reach of technology. For example, recent experiments conducted by the CMS detector at the Large Hadron Collider at CERN, which verified the

The Large Hadron Collider

existence of the Higgs boson, have led to its acceptance as part of the standard model of the universe. It is reasonable for science to have an evolving understanding of the universe, but if this understanding is identified with *reality* itself, it means that reality becomes an incoherent concept, limited to what technology enables us to perceive at any given time. The dependence of science on technology does not, however, inhibit our ability to search for the origin of the reason and intelligence that science itself helps us to perceive within nature. Owing to humanity's own capacity for reasoned and conceptual thought, these issues can be explored using the powers of the human mind.

Within this fallacy of 'reality' lies a second potential danger. When scientific discoveries, made through advances in technology, bring to light new information about our universe, we can misinterpret *discovery* as *creation*—interpreting the human endeavour associated with the discovery as essential to its existence. But scientific and technological advancement bring into human consciousness new knowledge and understanding of the universe that already exists, whether we are conscious of it or not.

An important claim of the Hawking and Mlodinow thesis is that science can now answer questions that were once the preserve of theology and philosophy. In attempting to deal with metaphysical questions, Hawking and Mlodinow simply dispense with the *meta*, so that only the material world is recognised as existing. Rather than providing clarity, however, this leads to confusion, collapsing the immaterial world into the material one. They subject metaphysical questions to a scientific method that, by its very nature, cannot go beyond describing and conceptualising natural phenomena. The authors fail to recognise the boundaries and limitations of science, and this leads to their assertion that physics can answer questions formerly answered by religion. The scientific method can never provide an answer to our origin. As Edgar Andrews contends:

> Far from explaining everything, science actually 'explains' nothing. What science does is *describe* the world and its phenomenology in terms of its own specialised concepts and models—which provide immensely valuable insights but become increasingly non-intuitive as we dig ever deeper into the nature of physical reality …. When we say 'science explains' something we usually mean that there exists a scientific *description* of the phenomenon in question.[17]

[17] Andrews, *Who Made God?*, 29.

Science investigates what *exists*; it tests and verifies. The origin of the building blocks of life, of the laws of nature that support them and of the intelligence that underpins them is an issue that science cannot address because it does not have the methodology, techniques and tools to do so. To answer these questions, and to find the reason for natural laws and the origin of the material world, we must go behind scientific determinism into the realms of theology and philosophy.[18] It would be beneficial if all the contributors to the debate about the origins of the universe were to acknowledge a basic truth: that the investigation of physical phenomena by the scientific methods of measuring, testing, verifying and conceptualising is incapable, by its very nature, of explaining their existence.

The Origin of Reason

Explanations for the existence of the universe have traditionally come from theology and philosophy. The use of humanity's reason to develop a knowledge and understanding of the world is the essential tool of such explanations. Philosophy tells us what reason is, but generally leaves untouched the question of the origin of reason. This question—whether for reason to exist its source must be reason—lies at the start of a long journey. There are two possible routes.

First, if the intelligence and reason manifested in the laws of nature derive from prior intelligence and reason, then who or what is this prior lawmaker? It is at this point that theology and philosophy can take the lead, supported by science. In this we seek to go beyond Eugene Wigner's assessment that it is not natural that the laws of nature exist and that there is 'no rational explanation' for the efficacy of mathematics in the natural sciences which, to his mind, 'border[s] on the mysterious'.[19] Instead, development and scrutiny of Andrews's approach to the 'hypothesis of God', in which he looks for evidence to support the thesis of a biblical God, enable us to explore the issues Wigner raises. In this

[18] Before he was elected Pope, Joseph Ratzinger asked a question which goes to the core of scientific endeavour as well as to the question of the origin of intelligence and reason in our universe. He observed: 'The question remains whether the newly powerful, who have found the key to the language of creation and can combine its building blocks themselves, will remember that their activity is only possible because the numbers and letters which they know how to combine already exist.' Joseph Ratzinger, 'Man between Reproduction and Procreation', translated by Thomas A. Caldwell, *Communio*, 16/2(1989), 201.

[19] Eugene Wigner, 'The Unreasonable Effectiveness of Mathematics in the Natural Sciences', *Communications in Pure and Applied Mathematics*, 13/1 (February 1960), 1–14, here 2.

discussion, Andrews's argument is valuable as it uses a scientifically accepted approach while also drawing on Christian faith and theology.

The other route is this: if intelligence and reason do not arise from a creator or law-maker, why do the laws of nature as described by science remain constant? Science can take the lead in answering such a question, but theology and philosophy play a supporting role. The answer offered by science must go well beyond a description of scientific determinism. This question could be put another way: why have there been laws of nature for 13.7 billion years rather than continuing, or at least intermittent, chaos and chance?

As an example, exploring the so-called 'golden proportion', *phi*, could serve as the basis for a science-led inquiry. Phi is mathematically expressed as follows:

$$\varphi = \frac{1+\sqrt{5}}{2} = 1.6180339887\ldots$$

This proportion, which describes the relation of a whole to its parts, was documented by Euclid (*c.*323–*c.*265 BC), and is seen widely throughout nature, as well as being expressed in structures such as the Egyptian pyramids and the Athenian Parthenon.[20] It has been known in many eras of history and has been named variously as the Divine Proportion, Golden Mean, Golden Proportion, Golden Section, Golden Ratio and Sacred Cut.[21] Seeking to explain how and why this proportion is expressed so widely within nature and human artifice may be a valuable basis for science to inquire about why the order and reason of the physical world have been sustained for 13.7 billion years.

The search for the origin of reason—that superior Reason Einstein perceived in the laws of nature—along the lines suggested here respects

[20] Claudi Alsina and Roger B. Nelsen, *Charming Proofs: A Journey into Elegant Mathematics* (New York: Mathematics Association of America, 2010), 22–28; William Dunham, *The Mathematical Universe: An Alphabetical Journey through the Great Proofs, Problems and Personalities* (New York: John Wiley and Sons, 1994), 24–35; Jim Al-Khalili, *Pathfinders: The Golden Age of Arabic Science* (London: Penguin, 2012), 97–98.

[21] In *The Secret Code* Priya Hemenway observes: 'Human fascination with the Divine Proportion over many hundreds of years is to a great extent due to its many remarkable properties—harmony, regeneration, and balance are only a few. Its harmony is apparent in the principles of design that nature uses to give us patterns in plants, shells, the wind, and the stars. The regenerative principle shows up in shapes and solids that form the basis of everything from DNA to the contours of the universe. Balance is found in the spiral in our inner ear and is reflected in the unfurling shape of the human embryo that hurls us into existence.' (Priya Hemenway, *The Secret Code: The Mysterious Formula That Rules Art, Nature and Science* [Cologne: Evergreen, 2008], 5.)

and challenges the positions of both sides in the debate on the new scientific atheism. For this reason following these routes should invigorate the debate, going to the heart of both arguments.

Failure to Understand and Engage with Christianity

According to the Roman Catholic theologian Hubert Philipp Weber, the new scientific atheism's assertion that science makes the act of creation obsolete arises from 'attenuated concepts and theological misunderstandings about creation'.[22] But he also points out that neither Vatican I nor Vatican II presented a detailed theology of creation, which is simply presupposed in Christian faith.[23] Nineteenth- and twentieth-century Christianity's lack of a clear articulation of such a theology may contribute to the misunderstanding of the Christian faith in creation found in *The Grand Design* and many similar works. However, the possibility that some new scientific atheists are deliberately misrepresenting Christian faith in order to discredit it should also be considered.

Hawking's and Mlodinow's references to Christianity in *The Grand Design* indicate a minimal and very faulty knowledge. They state:

> Though Aristotle's theories often had little predictive value, his approach to science dominated Western thought for nearly two thousand years. The Greek's successors rejected the idea that the universe is governed by indifferent natural law. They also rejected the idea that humans do not hold a privileged place within that universe. And though the medieval period had no single coherent philosophical system, a common theme was that the universe is God's dollhouse, and religion a far worthier study than the phenomena of nature.[24]

Hawking and Mlodinow not only fail in their historical analysis here—the concerns and interests of medieval society, like modern society, were much wider than religion—but also fail either to understand or to engage in dialogue with Christian theology, leading them to draw erroneous conclusions.

Neither Christianity's greatest thinkers nor the fundamental idea that faith and reason are compatible concepts are seriously considered.

[22] Hubert P. Weber, 'Gott begegnen in der Welt. Schöpfung als Ort der Gotteserkenntnis nach dem I. und II. Vatikanum', in *ET-Studies*, 1/2 (2010), 283.
[23] Weber, 'Gott begegnen in der Welt'.
[24] Hawking and Mlodinow, *Grand Design*, 24.

Bishop James Ussher, by Lely

Augustine and Aquinas, who address issues that Hawking and Mlodinow seek to resolve, are neglected. Instead, they refer to Bishop Tempier of Paris who, instigated by Pope John XXI, published a list of heresies in 1277, including the idea that nature follows laws, seen as conflicting with God's omnipotence.[25] They also quote Bishop Ussher, primate of All Ireland between 1625 and 1656, who calculated the date of creation to 27 October 4004 BC.[26] Had they—or Ussher, for that matter—consulted Augustine's commentary on Genesis, they would have read that Augustine rejected the literal reading of the Genesis creation accounts, stating that:

> When we think of the first creation of things, that is, of the works from which God rested on the seventh day, we should not think of those days as solar days, nor of that work of God as if it were the same as His working now in time.[27]

The authors of the Old and New Testaments, and early Christian writers such as Augustine, were aware that time is not uniform; indeed it could be argued that they preceded science in this understanding.

The lack of serious engagement by Hawking and Mlodinow, and other new scientific atheists, with Christian faith and theology at the same time as they are seeking to discard God from our reality is a great

[25] Hawking and Mlodinow, *Grand Design*, 25. On the Condemnation of 1277, see *A Source Book in Medieval Science*, edited by Edward Grant (Cambridge, Ma: Harvard UP, 1974), 45 following. The condemnation was anyway annulled in 1325.

[26] Hawking and Mlodinow, *Grand Design*, 124.

[27] Augustine, *The Literal Meaning of Genesis: A Commentary in Twelve Books*, translated by John Hammond Taylor and edited by Johannes Questen, Walter J. Burghardt and Thomas Comerford Lawler (New Jersey: Paulist Press, 1982), volume 1, 154. This idea is reflected in Psalm 90:4, 'For a thousand years in your sight are like yesterday when it is past, or like a watch in the night'. It is also seen in 2 Peter 3:8, 'But do not ignore this one fact, beloved, that with the Lord one day is like a thousand years, and a thousand years are like one day'.

weakness in their arguments. It opens their work to the charge of sloppiness. In response, not just the Church, but also the secular and scientific worlds, should insist that new scientific atheism maintain academic standards when referring to and discussing the beliefs and ideas of Christianity. This involves engaging with Christian theology as espoused by its greatest thinkers and leading authorities. In conjunction with the acknowledgement of the limitations of the scientific method, this would greatly enhance the debate on the origin of our universe and the superior Reason that Einstein posited in relation to the laws of nature.

The Church's Response to the New Scientific Atheism

Christianity should not be overawed by science, or by any academic discipline. Instead, Christian theologians should insist on robust fundamentals and coherent, logical starting points for the dialogue with the new scientific atheism. They are also duty-bound to provide clear and succinct articulation of the principles of Christian theology, particularly in relation to the theology of creation, so that it is not just presupposed but explicitly articulated. This may, in fact, necessitate a more thorough working out of that theology which, like most such developments, needs to be the fruit of a long and difficult process in response to erroneous assertions.

Articulating Christianity's ideas, positions and arguments succinctly is the best way not only of responding to the new scientific atheism but also of shaping the debate about the origin of the universe. It is of the utmost importance that the debate about our origin and existence hears of this theology. For it is arguable that the idea presupposed in Christian faith—that this universe, with its laws, complexity and life, is created—makes more sense than the idea there is no creator, even if science, theology and philosophy are at a loss to prove or disprove God's existence.

One final question needs to be asked: is there a place for prayer in this dialogue? Communion among the Father, Son and Spirit is fundamental to Christianity, just as communion with the triune God is fundamental to each Christian. The challenge that Christian thinkers face is how this reality can be translated into academic arguments. Here, of course, we encounter the great problem for theology. Prayer and communion with God are the essence of the faith that is the foundation of Christian theology, but they are not accepted within academic theology or in dialogue with other academic disciplines. A full answer to this question cannot be provided here, but it may well be the right time for theology to

challenge other academic disciplines about the appropriateness of this situation. The limitations of the scientific approach discussed here apply equally to all disciplines which follow its approach. For example, today's financial crisis demonstrates the limitations of economics.

In November 2008, while visiting the London School of Economics Queen Elizabeth II asked why nobody had predicted a financial crisis. A group of eminent economists subsequently wrote to the queen to answer her question. They blamed 'a failure of the collective imagination of many bright people' and admitted to a 'psychology of denial'.[28] However, in light of such a significant divergence between prediction and outcomes the methodology underpinning the work of economists rightly comes under scrutiny. It took a queen to ask why the emperor had no clothes. Now, perhaps, it is time for a reassessment of the exclusive use and acceptance of the 'scientific approach' in academic inquiry, and for consideration to be given to widening the methodological boundaries for scientific and academic inquiry. The purpose of such widening would be to ensure that academic inquiry remains relevant, coherent and capable of fully engaging with the reality of the universe.

Even if, owing to the scientific approach, faith and the method of prayer as tools for searching for God are not acceptable within academic dialogue, they most certainly should be practices that the Church proposes to the non-academic world. Suggesting that God, the *Creator Spiritus*, can be sought through the simple method of prayer—of asking for help, guidance and comfort, or of repeating traditional prayers such as the Our Father or the Psalms—will be seen as foolishness by some in the academic community, but in so doing the Church is offering the path to true wisdom. Prayer opens to each individual the possibility of an encounter with the God of scripture by providing a pathway to a new dimension beyond the material world. It offers to the individual a relationship with that strange power which cannot be seen or proved but can be known through God's self-gift: the source of true life.

A new dimension beyond the material world

A methodological approach that includes the use of faith and prayer to investigate the reality of the universe could be described as a hermeneutic of faith and prayer. It would be an attempt to find an

[28] Heather Stewart, 'This Is How We Let the Credit Crunch Happen, Ma'am', *The Observer* (26 July 2009). Available at http://www.guardian.co.uk/uk/2009/jul/26/monarchy-credit-crunch, accessed 13 January 2012.

appropriate space for the basis of theology—faith in God—within academic research. *Lumen fidei* makes an important start by arguing that knowledge arises from faith. Linking faith, truth and love, Pope Francis maintains that faith is transformative through its openness to love which is inseparable from truth, which is our origin, 'the question of God'. Francis states: 'Faith's understanding is born when we receive the immense love of God which transforms us inwardly and enables us to see reality with new eyes'.[29] If developed with academic rigour and used in conjunction not only with the scientific method but with the Athenian approach of deductive logic, as well as being open to other methodologies, this new approach would represent a radical departure from current academic discourse. As a consequence, it might allow that discourse to evolve in response to the failure of current theorists in all disciplines to engage fully with the reality and scope of our universe.

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[29] Francis I, *Lumen fidei* (Dublin: Veritas, 2013), nn. 25/27, nn. 23–36, here n. 26. Available at http://www.vatican.va/holy_father/francesco/encyclicals/documents/papa-francesco_20130629_enciclica-lumen-fidei_en.html, accessed 7 November 2013.