



3 OCTOBER 2017

## ARE SCIENCE AND FAITH AT WAR?

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It is a great pleasure to be here again, and to give the first of my final series of lectures in my three-year term as the Gresham Professor of Divinity. I have greatly enjoyed my time as Gresham Professor, but am finding that the administrative and academic demands of Oxford University are cutting down on the time I have at my disposal to do other things! In my final series of lectures, I will be looking at some of the big questions that we face as human beings in this complex world, as we both try to make sense of what we see around us, and discern meaning, value, and purpose within our lives. Many are now using the term “post-truth” to refer to our cultural values, suggesting that we believe what we want to believe, and take offence when our imagined certainties are challenged. I will be using science and religion as a framework for exploring these questions with you.

For those of you who have not heard me lecture before, let me tell you that my object in these lectures is to open up discussion of some of the big questions in life. I will always let you know what I think about them, but my real purpose is not to impose my views on you, but to open up these questions so that you can think about them for yourselves. I hope that I will give you lots of food for thought, stimulating both your thinking and your appetite to reflect on these big questions of life.

Let me begin with a startling quotation from the philosopher Thomas Nagel. I am sure that some of you will have read him. One of his best books, in my view, is his 1986 work *The View from Nowhere*, which argues that that every viewpoint on the world or life is actually a “view from somewhere.” This means that we cannot escape the condition of seeing the world from our particular location within it, raising difficulties for the notion of rationality associated with the Enlightenment. But here is the quotation that I found so interesting, which comes from his 1997 work *The Last Word*.

“It isn’t just that I don’t believe in God, and, naturally, hope that I’m right in my belief. It’s that I hope there is no God! I don’t want there to be a God; I don’t want the universe to be like that.”

Now Nagel’s philosophical defence of his atheism could easily be criticized as a retrospective intellectual validation of a belief that had been determined on emotional grounds – a good example of what the psychologist Jonathan Haidt describes as the “emotional tail” wagging the “rationalist dog”. Yet I cite this passage simply to illustrate a trend that seems to be increasingly commonplace: deciding what sort of world there ought to be, and then subsequently finding reasons to defend that world. It worries me.

Now we all know that some people do not want there to be a God, so that they can be the masters of their own destinies without having to worry about any divine interference. C. S. Lewis is a classic example of someone whose early atheism reflected his desire for autonomy, safe from being troubled by what he called the “Great Interferer.” Historians often point out how the origins of modern atheism reflect a longing for humans to be able to do anything they want, rather than work within a divinely given moral framework. A desire for total autonomy was expanded into a desire for the elimination of perceived obstacles to such freedom – including the notion of God.

Now let us be clear that this works both ways. I have no doubt that there are some people who believe in God because it offers them some kind of consolation or support. It is not just some atheists who create a world that corresponds to the way they would like things to be! But my point is that this seems to be the way in which our



culture is heading – the invention of a world that we would like, and a refusal to think about it rigorously and critically. That is one of the reasons why I am so supportive of the work of Gresham College – it gives people an opportunity to reflect on the big questions about life in an informed and critical way. Gresham College is an excellent antidote to this “post-truth” trend in our culture!

My six lectures this coming year will focus on the human quest for meaning, and how religion and science try to answer them. The quest for meaning has, of course, also been important in philosophy. Yet as the American philosopher Susan Wolf noted recently, it is hardly ever asked in philosophical circles nowadays – and then only by naïve young students, whose lack of sophistication causes professional philosophers to cringe with embarrassment. Yet social psychologists have emphasised the importance of this idea, whether or not professional philosophers agree with them. Roy Baumeister, for example, has argued that, on the basis of careful empirical work, that the generalized human need for meaning in life needs to be affirmed on the one hand, and that it can be into four basic needs on the other – namely, purpose, value justification, self-efficacy, and self-worth. These four needs can be understood as different motivational patterns that help people to make sense of and find meaning in their lives.

Traditionally, these concepts of meaning have been met by religion. However, the erosion of the societal influence of religion has led to a value gap which modern society has attempted to fill in various ways. A question that we will consider in these lectures is the extent to which science is able to meet this need for meaning. Psychology, for example, is very good at documenting the kinds of things that people find meaningful on the basis of empirical studies. But it will not tell us what that meaning should be. It is one thing for psychologists to tell us that human beings seem to be more fulfilled and happy if they have sorted out questions of meaning and value; it is another to tell us what that meaning and what those values ought to be.

Many of you will know Alexander Pope’s *Essay on Man* (1732-4), one of the greatest works of literature of the “Augustan Age.” This rich and complex poem is a shrewd reflection on the aspirations and limits of being human, and our difficulties in making sense of the universe within which we find ourselves placed. Pope recognizes that this universe appears incoherent and morally ambiguous, perhaps characterized by evil more than by good. Yet, Pope suggests, we have to take account of our limited rational capacities in reaching this judgement. Perhaps the universe appears imperfect and incoherent to us because of the limits placed on human perception. Life seems chaotic and purposeless to us because we are immersed within the flux of things, and cannot extricate ourselves from it to catch a tantalizing full glimpse of reality which alone could disclose that we have a meaningful place in a coherent universe.

Now it would be a little simplistic to suggest that religion is about offering us a God’s-eye view of the world, which helps us to stand above the flux of history and figure out questions of meaning and value. But there is some truth in this suggestion. Here’s the philosopher Keith Yandell’s account of the nature of religion; note his emphasis on religion as a way of understanding our world, and how this leads into the practicalities of life.

A religion is a conceptual system that provides an interpretation of the world and the place of human beings in it, bases an account of how life should be lived given that interpretation, and expresses this interpretation and lifestyle in a set of rituals, institutions and practices.

Now before we go any further, we need to look at a question which is reflected in this lecture’s title. The cultural establishment of the west seems to have become locked into a “science versus religion” groupthink, which dogmatically asserts not merely that science makes belief in God unnecessary, but that science makes such a belief impossible in the first place. Yet this idea of the “warfare” of science and religion is a recent invention, dating mainly from the second half of the nineteenth century. For writers of the Renaissance, science and religion were like two books, each of which offered its own distinctive way of making sense of the world, and which could be read alongside each other in a positive and productive manner.

The dominant story in western culture about science and religion is that they are at war with each other. Yet these arguments for the warfare of science and religion tend to rely on what is called the “golden thread” approach. This involves taking something that is vast and complex, and focussing only on its elements that fit into the story that you want to tell, and ignoring those of its elements that do not fit your story. It is easily done.



A good example is found in Christopher Hitchens's book *God is Not Great* (2007). In this work, Hitchens defends the “conflict” narrative by a highly selective appeal to history, which its critics dismiss as little more than prejudice-driven cherry-picking. Hitchens presents carefully selected historical anecdotes as if they were representative of some greater universal truth. Let us look at one of these. Hitchens rightly states that the Christian writer Timothy Dwight (1752-1811), a former president of Yale College (which later became Yale University), opposed smallpox vaccination. For Hitchens, Dwight's misjudgement is typical of religious people in general, who put religious dogma in the way of scientific advance then, as now.

Now this is worryingly light on historical evidence. Hitchens is quite right to use smallpox vaccination as a case study in hostility to scientific advance. And he is also absolutely right in stating that Dwight opposed smallpox vaccination. But the situation is much more complex, and obstinately fails to conform to the “warfare” narrative that Hitchens so uncritically embraces. Hitchens's “golden thread” is a highly selective reading of history, which airbrushes out inconvenient truths. Let me give two counter-examples to make this point clear.

Now Hitchens clearly thinks that smallpox vaccination is a good thing, so that those who oppose it are to be condemned and those who advocate it to be commended. Let us go back to the generation before Timothy Dwight. Jonathan Edwards (1703-1758), now widely regarded as America's greatest Christian thinker, was the third president of Princeton College (which late became Princeton University). Edwards was a strong supporter of scientific and medical advance, and became a forceful early advocate of vaccination against smallpox. In order to demonstrate to his sceptical students at Princeton that this new medical procedure was safe, Edwards himself was vaccinated against smallpox. The vaccination was not successful, and Edwards died shortly afterwards.

Now unbiased readers would not unreasonably expect Hitchens to have given a balanced and accurate account of religious attitudes towards smallpox vaccination, especially as Edwards's advocacy of smallpox vaccination cost him his life in the service of scientific advance. Yet Edwards is simply airbrushed out of the picture. Hitchens's goal is to defend both the “warfare” narrative and his own rather dogmatic version of atheism, not to give a fair account of history.

Hitchens also fails to mention that the influential atheist writer George Bernard Shaw (1856-1950) opposed smallpox vaccination in the 1930s, ridiculing it as a “delusion” and a “filthy piece of witchcraft.” Shaw dismissed leading scientists whose work so clearly supported it – such as Louis Pasteur and Joseph Lister – as charlatans who knew nothing about the scientific method. Yet Shaw made these ludicrous assertions in the twentieth century.

You see my point. History is complicated. My two counter-examples simply make this point. Some religious people opposed smallpox vaccination; some encouraged it. Some atheists opposed smallpox vaccination; some accepted it. There is not a simple story, an essential truth about science and religion. When the historical myths lying behind this are laid to rest, it is clear that there is a plurality of narratives for understanding the relation of science and faith, none of which have the privilege of being self-evidently true or intellectually normative. The relationship between science and religion is complicated, and cannot be reduced to dumbed-down slogans which ultimately serve polemical cultural agendas. Yes, religion and science can be in conflict. But they do not need to be at war with each other, and usually have not been so in the past. The problem is that our culture tends to look at both history and present experience through this controlling lens, and sees what it wants to see.

A solid body of scholarship has gradually built up in recent years, forcing revision of some older and rather unreliable understandings of the relation of science and faith. It is now clear that the boundaries of “science” and “religion” are increasingly recognised to be shaped by historical contingencies. As leading scholars such as Peter Harrison have shown, the respective territories of science and religion can be mapped in multiple manners, and are open to multiple interpretations. The idea of some perennial or essential “warfare of science and religion” narrative has had its day, and it is time to move on.

Science is intrinsically neither for nor against religion, any more than it is for or against politics. It rightly objects when religion (or politics) gets in the way of scientific advance, and rightly applauds when religion (or politics) encourages scientific inquiry and engagement. In the same way, science is neither religiously atheistic or theistic,



nor politically liberal or conservative, although it can easily be accommodated within such perspectives. And science is entirely right to challenge religious or political beliefs when these present themselves as science.

Let me make it clear that there are unquestionably points at which science and religion are in tension, both in the past and the present. But there are also points at which there is the potential for synergy and dialogue. It's like a Venn diagram, in which two areas overlap to some limited extent, while remaining distinct.

Science is one of humanity's most significant and most deeply satisfying achievements. Yet though I loved science as a young man, I had a sense that it was not complete. Science helped me to understand how things worked. But what did they mean? Science gave me a neat answer to the question of how I came to be in this world. Yet it seemed unable to answer a deeper question. Why was I here? What was the point of life?

The question is whether the natural sciences can help us engage with these deeper issues, which the philosopher Karl Popper famously framed in terms of "ultimate questions". For Popper, these were existentially significant questions, rooted in the depths of our being, yet which transcended the capacity of the natural sciences to answer. The physicist John Wheeler (1911 – 2008) argued that our scientific observations at best yield only an "island of knowledge" in an ocean of uncertainty. There are limits to science's capacity to answer fundamental philosophical questions of value and meaning, partly reflecting limitations on the part of the tools we use to explore reality, and partly the nature of physical reality itself.

So why don't we just limit ourselves to the relative security of this small island of knowledge? There are two obvious answers. First, we sense that there is more that can be known, and are restless until we find it. We find strange objects washed up on the shoreline of our island, possibly pointing to mysterious unknown worlds beyond its coast. And perhaps more significantly, the kind of knowledge that is to be had on this island is existentially inadequate. It does not answer the really big questions of life. That is why the Spanish philosopher José Ortega y Gasset (1883-1955) argued that we need more than the partial account of reality that science offers.

Scientific truth is characterized by its precision and the certainty of its predictions. But science achieves these admirable qualities at the cost of remaining on the level of secondary concerns, leaving ultimate and decisive questions untouched.

Ortega insists that we need a "big picture", an "integral idea of the universe" which possesses existential depth, and not merely cognitive functionality. Science has a wonderful capacity to explain, while nevertheless failing to satisfy the deeper longings and questions of humanity.

For Ortega, as a philosopher, the great intellectual virtue of science is that it knows its limits, which are determined by its research methods, not by artificial or arbitrary constraints. At its best, science will only answer questions that it knows it can answer on the basis of the evidence. Yet human beings want to press beyond the point at which science declares that it must stop, if it is to remain faithful to its methodological commitments. We ask deeper questions about meaning, and try to find a "big picture" which makes sense of life as a whole.

As Ortega rightly observed, human beings – whether scientists or not – cannot live without answering these deeper questions, even in a provisional way. "We are given no escape from ultimate questions. In one way or another they are in us, whether we like it or not. Scientific truth is exact, but it is incomplete." Science is very good at taking things to pieces. Yet analysis is not enough; we need to weave the various elements of our world in order to perceive the "big picture." That is why I think we need to take the leading sociobiologist Edward Wilson very seriously, when he points to the need for consilience – the ability to weave together multiple threads of knowledge in a synthesis which is able to disclose a more satisfying and empowering view of reality.

We are drowning in information, while starving for wisdom. The world henceforth will be run by synthesizers, people able to put together the right information at the right time, think critically about it, and make important choices wisely.



Perhaps a poet can help us to grasp this point more clearly. In one of her sonnets, the American poet Edna St. Vincent Millay (1892-1950) spoke of “a meteoric shower of facts” raining from the sky.

Upon this gifted age, in its dark hour,  
Rains from the sky a meteoric shower  
Of facts . . . they lie unquestioned, uncombined.  
Wisdom enough to leech us of our ill  
Is daily spun; but there exists no loom  
To weave it into fabric.

Yet as you can see, Millay suggests that these facts “lie unquestioned, uncombined.” They are like threads, which need to be woven into a tapestry, clues that need to be assembled to disclose the big picture. As Millay pointed out, we are overwhelmed with information, but cannot make sense of the “shower of facts” with which we are bombarded. There seems to be “no loom to weave it into fabric.” Confronted with a glut of information that we cannot process, we find ourselves living on the brink of incoherence and meaninglessness. We may live in an age of information, but it is not an age of meaning. And a failure to find meaning can easily lead to despair. Or, to go back to Wilson’s comment, we are “drowning in information, while starving for wisdom.”

So how are we to understand the complex relationship between science and religion? It is not an easy matter to analyse. There are considerable variations between the different natural sciences in terms of their methods and approaches. For a start, the term “religion” is notoriously difficult to define. To make things more complex, there are considerable differences between (and within) individual religions. Any attempt to generalize about the relationship between science and religion is therefore bound to encounter serious difficulties. Nevertheless, the effort is generally regarded as worthwhile. Are they enemies, strangers, friends, or partners?

One of the most influential categorization of approaches to the relation of science and religion is due to Ian Barbour (born 1923), regarded by many as the pioneer of studies in science and religion. Barbour’s four-fold typology of “ways of relating science and religion” first appeared in print in 1988, and even after 30 years remains the most widely used typology in the field. Barbour lists four broad types of relations: conflict; independence; dialogue; and integration. To begin with, I will set out and illustrate Barbour’s fourfold scheme, before noting some questions that might be raised concerning it.

## **Conflict**

Historically, the most significant understanding of the relation between science and religion is that of “conflict”, or perhaps even “warfare”. This strongly confrontational model continues to be deeply influential at the popular level, even if its appeal has diminished considerably at a more scholarly level. “The war between science and theology in colonial America has existed primarily in the cliché-bound minds of historians” (Ron Numbers). This influential model was expounded in two influential works published in the later part of the nineteenth century – John William Draper’s *History of the Conflict between Religion and Science* (1874) and Andrew Dickson White’s *History of the Warfare of Science with Theology in Christendom* (1896). Today, the best-known representative of this approach is probably Richard Dawkins, who argues that “faith is one of the world’s great evils, comparable to the smallpox virus but harder to eradicate.” Science and religion are implacably opposed. Science represents reason, and religion superstition.

Yet this model is not restricted to anti-religious scientists. It is widespread within conservative religious groups within Christianity and Islam, who are often virulently hostile to the idea of biological evolution. The creationist Henry M. Morris (1918-2006) published a sustained critique of modern evolutionary theory with the title *The Long War against God* (1989). In an appreciative foreword to the book, a conservative Baptist pastor declares that “modern evolutionism is simply the continuation of Satan’s long war against God”. Morris even invites us to imagine Satan imagining the idea of evolution as a means of dethroning God.

Yet many of the historical episodes that are traditionally placed in this category, or held to represent its manifestation, can be interpreted in other ways. The Galileo controversy, for example, is still presented as a classic example of “science against religion”, even though it is now seen as much more complex and nuanced.



Similarly, Darwin's theory of evolution is often presented as anti-religious, even though Darwin himself was adamant that it was not. Indeed, in 1889 the Anglican theologian Aubrey Moore remarked that "Darwinism appeared, and, under the disguise of a foe, did the work of a friend". The issue of whether science and religion are in conflict all too often seems to rest on complex issues of interpretation.

## Independence

The destructive effects of controversy caused many to want to move beyond the limits of the "warfare" or "conflict" model. In the first place, it was seen to be historically questionable. As I mentioned earlier in this lecture, it often rests on a "golden thread" approach, which invents patterns that are not really there in the complexities of history. A desire to avoid conflict led many to insist that the two fields had to be regarded as completely independent of each other. This approach insists that science and religion are to be seen as independent, autonomous fields of study or spheres of reality, with its own distinct rules and language. Science has little to say about religious beliefs, and religion has little to say about scientific study.

This approach is found in the 1981 policy statement of the National Academy of Science, which declared that "religion and science are separate and mutually exclusive realms of human thought whose presentation in the same context leads to misunderstanding of both scientific theory and religious belief." It is also found in Stephen Jay Gould's influential model of "nonoverlapping magisteria" (NOMA), which can be seen as based on the affirmation of mutual respect and the recognition of differing methodologies and domains of interpretation between science and religion:

I believe, with all my heart, in a respectful, even loving concordat between our magisterial – the NOMA solution. NOMA represents a principled position on moral and intellectual grounds, not a mere diplomatic stance. NOMA also cuts both ways. If religion can no longer dictate the nature of factual conclusions properly under the magisterium of science, then scientists cannot claim higher insight into moral truth from any superior knowledge of the world's empirical constitution. This mutual humility has important practical consequences in a world of such diverse passions.

A variant of this approach is provided by the American theologian Langdon Gilkey (1919-2004). In his 1959 work *Maker of Heaven and Earth*, Gilkey argues that theology and the natural sciences represent independent and different ways of approaching reality. The natural sciences are concerned with asking "how" questions, where theology asks "why" questions. The former deals with secondary causes (that is, interactions within the sphere of nature), while the latter deals with primary causes (that is, the ultimate origin and purpose of nature).

This independence model appeals to many scientists and theologians because it gives them freedom to believe and think what they like in their own respective fields ("magisterial", to use Gould's phrase), without forcing them to worry about what others think, or how their own ideas might relate to these. However, as Ian Barbour points out, this inevitably compartmentalizes reality. "We do not experience life as neatly divided into separate compartments; we experience it in wholeness and interconnectedness before we develop particular disciplines to study different aspects of it." In other words, the circles overlap and interlock; they are not completely separate.

## Dialogue

A third way of understanding the relation between science and religion is to see them as engaged in a dialogue, leading to enhanced mutual understanding. As the late pope John Paul II commented in 1998, "the church and the scientific community will inevitably interact; their options do not include isolation". So what form might their interaction take? How might they complement each other? For John Paul II, the answer was clear, and I think it is worth citing:

"Science can purify religion from error and superstition; religion can purify science from idolatry and false absolutes. Each can draw the other into a wider world, a world in which both can flourish."

This point was further developed by the "Dialogue Group" of scientists and Catholic bishops in the United States, who declared that, "science and religion can offer complementary insights on complex topics like the



emerging bio-technologies.” We see here a recognition that the moral limitations placed on the natural sciences by virtue of the amoral character of the scientific method leads to a realization of the need to supplement the scientific discussion from other sources.

This dialogue respects the distinct identity of its participants, while exploring their shared presuppositions and assumptions. Ian Barbour regards this model as the most satisfactory of the possible range of approaches. It is also found throughout the recent writings of the physicist turned theologian John Polkinghorne, who points out a series of significant parallels between the two magisterial. For example, both science and religion involve at least some degree of personal judgment, in that both deal with data that is “theory laden”. Similarly, both involve a series of what might be termed “fiduciary” assumptions – for example, that the universe is rational, coherent, ordered, and whole. I personally am sympathetic to this approach, not least because it encourages interdisciplinary dialogue.

## Integration

A fourth understanding of the way in which science and religion interact can be found in the writings of the Cambridge theologian Charles Raven (1885-1964). In his *Natural Religion and Christian Theology* (1953), Raven argued that the same basic methods had to be used in every aspect of the human search for knowledge, whether religious or scientific. “The main process is the same, whether we are investigating the structure of an atom or a problem in animal evolution, a period of history or the religious experience of saint”. Raven vigorously resists any attempt to divide the universe into “spiritual” and “physical” components, and insists that we must “tell a single tale which shall treat the whole universe as one and indivisible”. Barbour himself is very sympathetic to this approach, and sees process thought as a catalyst to this process of integration.

So what difficulties are raised by this relatively simple fourfold taxonomy? The most obvious is that it is inadequate to do justice to the complexity of history. As historians such as Geoffrey Cantor point out, history bears witness to a series of “complications that cannot be incorporated in simplistic taxonomies”. It is difficult to refute this point. Barbour’s four-fold scheme is useful precisely because it is so simple. Yet its simplicity can be a weakness, as much as a strength.

More seriously, the model is purely intellectual in its approach, concerning how ideas are held together. What about the social and cultural aspects of the matter, which play such an important role in any attempt to understand how the interaction of science and religion works out in practice, either in the past or the present? There has been a growing trend in recent scholarship shown to shift the analysis away from a purely intellectual approach to the interaction of science and religion, and consider their symbolic and social dimensions, where the interaction is much more nuanced.

Furthermore, the historical context often needs close examination. Supposed tensions and conflicts between science and religion, such as the Galileo controversy, often turn out to have more to do with papal politics, ecclesiastical power struggles and personality issues than with any fundamental tensions between faith and science. Historians of science have made it clear that the interaction of science and religion is determined primarily by the specifics of their historical circumstances, and only secondarily by their respective subject matters. There is no universal paradigm for the relation of science and religion, either theoretically or historically. The case of Christian attitudes to evolutionary theory in the late nineteenth century makes this point particularly evident. As the Irish geographer and intellectual historian David Livingstone makes clear in a ground-breaking study of the reception of Darwinism in two very different contexts – Belfast, Northern Ireland, and Princeton, New Jersey – local issues and personalities were often of decisive importance in determining the outcome, rather than any fundamental theological or scientific principles.

Nevertheless, despite its limitations, the framework set out by Barbour remains helpful as a means of approaching the field of science and religion studies. It represents a useful description of possible approaches, but should not be pressed too far in terms of a rigorous analysis of the issues. Perhaps it could be thought of as a useful sketch of the landscape, rather than as a detailed and precise map.



My own view is that we need to take very seriously what the great American philosopher John Dewey (1859-1952) declared to be “deepest problem of modern life” – our collective and individual failure to integrate our “thoughts about the world” with our thoughts about “value and purpose”. In my view, the Christian faith has the potential to enrich a scientific narrative by preventing it from collapsing into what John Keats described as a “dull catalogue of common things”. Max Weber used the term “disenchantment” to refer to an excessively intellectual and rationalising way of looking at nature which limited it to what could be measured and quantified. Now those of who in this audience who are scientists will perfectly reasonably point out that these processes of quantifying and reduction are integral to the scientific method. And I agree. It is just that there is a lot more that needs to be said.

My own view is that science is really good at taking things apart so that we can see how they work. Faith puts them back together again, so that we can see what they mean. A religious perspective does not in any way deny the scientific utility of such a rationalizing or reductive approach, although it does challenge its finality. It simply insists that a fuller and more satisfying account of reality can be provided, and offers a supplementation of a scientific narrative by which this might be achieved.

Many of you will have read the philosopher Mary Midgley, and know that she suggests that the landscape of reality is so variegated and complex that we need to use “multiple maps” if we are to grasp the depths and detail of reality. Appreciating the complex texture of our world of observation and experience requires “many maps, many windows,” in that there are “many independent forms and sources of knowledge”. She suggests that it is helpful to think of the world as a giant tank of water, filled with aquatic creatures and plants.

We cannot see it as a whole from above, so we peer in at it through a number of small windows ... We can eventually make quite a lot of sense of this habitat if we patiently put together the data from different angles. But if we insist that our own window is the only one worth looking through, we shall not get very far.

For Midgley, no single way of thinking is adequate to provide, on its own, an understanding of the meaning of our world. Science can fill in only part of the “big picture” of our world; it needs supplementation from other research methods and traditions if the full picture is to be fleshed out, and given depth. “For most important questions in human life, a number of different conceptual tool-boxes always have to be used together.” If we limit ourselves to the methods of the natural sciences in general, or one specific science (such as physics) in particular, we end up locking ourselves into a “bizarrely restrictive view of meaning”. Insisting that we only use scientific methods, forms and categories restricts us to a narrow world which excludes meaning and value, not because they are absent, but because the research method prevents them from being seen.

Midgley’s basic principle of using multiple maps to represent a complex reality clearly raises some challenges and some significant questions. Here is one of those questions: how do we settle boundary disputes between science and religion? Yet despite these difficulties, I think it is important to see that Midgley’s approach opens up some important possibilities for the enrichment of our vision of life in the world. We need a rich and generous palette of colours to represent the complexities of our observations of the world around us, and our experience within us. If we were to use a severely limited range of colours, such as the drab and shallow shades of grey proposed by narrow interpretations of the scientific method, we would limit the scope and depth of our grasp of our world, simply because we would have closed down the research methods and traditions that might enable us to see further and more clearly.

In this lecture, I have laid the ground for some more detailed reflection on the big questions of life. It is time to get more specific and interesting! In my second lecture, to be delivered next month, I will look at sky-watching. Why do people find the night sky so fascinating? And what sort of questions does astronomy open up for us? I will look forward to seeing you again then!