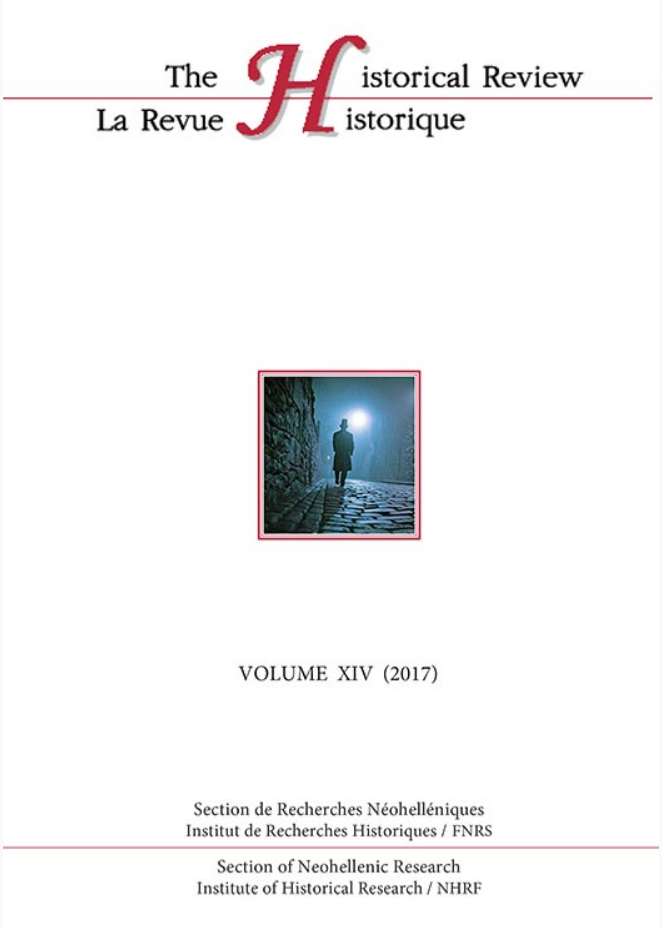
The Historical Review/La Revue Historique

Vol 14 (2017)



Darwinism and the Survival of Religion

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doi: 10.12681/hr.16315

To cite this article:

Brooke, J. H. (2018). Darwinism and the Survival of Religion. *The Historical Review/La Revue Historique*, *14*, 267–291. https://doi.org/10.12681/hr.16315

C. TH. DIMARAS ANNUAL LECTURE, 2016

JOHN HEDLEY BROOKE

Darwinism and the Survival of Religion

SECTION OF NEOHELLENIC RESEARCH
INSTITUTE OF HISTORICAL RESEARCH / NHRF

The Historical Review / La Revue Historique
Section of Neohellenic Research / Institute of Historical Research
Volume XIV (2017)

À partir de cette année, la conférence annuelle "C. Th. Dimaras", dédiée à la mémoire du fondateur du Centre des Recherches Néohelléniques, sera publiée en annex de la *Revue Historique*.

Starting this year, the C. Th. Dimaras Annual Lecture, dedicated to the founder of the Centre of Neohellenic Research, will be published in *The Historical Review*.

FOREWORD

John Hedley Brooke studied the natural sciences at Cambridge University, obtaining a first-class honours degree in 1965. Having obtained a distinction in his study of the history and philosophy of science, his Cambridge doctoral thesis was devoted to the development of organic chemistry in the nineteenth century. A research fellow at Fitzwilliam College, Cambridge (1967–68), his first academic appointment was in the school of mathematical and physical sciences at the University of Sussex (1968–69). From 1969–99 he taught in the history department at Lancaster University, becoming a member of the International Academy of the History of Science in 1993. In 1995, with Prof Geoffrey Cantor, he gave the Gifford Lecture at Glasgow University. From 1999 to 2006, he was the first Andreas Idreos Professor of Science and Religion at Oxford University, director of the Ian Ramsey Centre and fellow of Harris Manchester College. Following retirement, he spent time as a distinguished fellow at the Institute of Advanced Study, University of Durham (2007). He has lectured worldwide and in November 2001 gave the distinguished lecture of the History of Science Society. From 2000 to 2003 he directed the European Science Foundation's Science and Human Values network. A former editor of the *British Journal for the History of Science*, he has served as president of the British Society for the History of Science, Historical Section of the British Science Association, UK Forum for Science and Religion and International Society for Science and Religion. Among his books are *Science and Religion: Some Historical Perspectives* (Cambridge, 1991), which won the Watson Davis and Helen Miles Davis Prize of the History of Science Society; *Thinking About Matter* (Ashgate, 1995); and (with Geoffrey Cantor) *Reconstructing Nature: The Engagement of Science and Religion* (Edinburgh 1998). He is coeditor of *Science in Theistic Contexts* (Chicago, 2001), *Heterodoxy in Early Modern Science and Religion* (Oxford, 2005), and *Religious Values and the Rise of Science in Europe* (Istanbul, 2005). His most recent book, coedited with Ronald Numbers, is *Science and Religion around the World* (New York, 2011). The author of more than one hundred journal articles and book chapters, he has contributed to *The Cambridge Companion to Darwin*, *The Cambridge Companion to the "Origin of Species"*, *The Cambridge Companion to Science and Religion*, *The Oxford Handbook of Religion and Science, The Oxford Handbook of Nineteenth-Century British Philosophy*, and *The Oxford*

Handbook of the Reception History of the Bible. Together with Fraser Watts, he was editorial consultant for *The Oxford Handbook of Natural Theology* (2013). His research interests have embraced the history of organic chemistry, the British natural theology tradition from the seventeenth to the nineteenth centuries, Darwiniana, and the evaluation of the sciences in different religious cultures. He is probably best known for his *Science and Religion: Some Historical Perspectives*, which has recently been reissued in the prestigious *Canto Classics* series of Cambridge University Press. He is currently visiting professor in the School of Philosophy, Religious Studies, and the History of Science at the University of Leeds.

The Science and Orthodox Christianity around the World (SOW) project of the Institute of Historical Research of the National Hellenic Research Foundation aims to chart a previously unknown field: the views and positions on the relations between science and religion in the entire Orthodox Christian world. It is setting the foundations for an organised and advanced dialogue between science and Orthodoxy. The study of these relations is well advanced as far as it concerns Western Christianity and Prof Brooke is a leading specialist in that field. His aforementioned *Science and Religion: Some Historical Perspectives* has been translated in many languages, including Greek, and has opened new paths in science and religion studies; it is a book of reference for all scholars interested in the field. We are very honoured that Prof Brooke has accepted to give the 2016 C. Th. Dimaras Lecture within the framework of his collaboration with the SOW project.

Efthymios Nicolaidis

Institute of Historical Research/NHRF

DARWINISM AND THE SURVIVAL OF RELIGION

It is a great honour and privilege to give the Constantinos Th. Dimaras Lecture for 2016. I am grateful to the National Hellenic Research Foundation for the opportunity to do so and to Dr Efthymios Nicolaidis for kindly issuing the invitation.[1]

In our age of the internet, there are few topics that excite such strong opinions in the blogosphere as the relations between science and religion. Deeply embedded in the consciousness, both scholarly and popular, of Western Europe is the belief that science and religion have continuously been, and must be, in conflict. This belief has been described as "the idea that wouldn't die", despite excellent historical research drawing attention to its shortcomings.[2] It is certainly not the only view. Those, including scientists themselves, who represent different religious traditions, have often argued that, when "science" and "religion" are properly understood, there can be a deeper relationship of harmony, or at least compatibility, between them. When, during the 1960s, I studied the history of science at Cambridge University, I realised that these two master narratives of conflict and harmony are too general to capture the complexity of historical controversy and debate.[3] One of my aims in this lecture is to illustrate this complexity by examining religious responses to Charles Darwin's theory of evolution. It is widely agreed that Darwin's science was a serious threat to religious institutions and traditional religious beliefs. And yet 150 years after Darwin published his book *On the Origin of Species* (1859), religious organisations and institutions still survive, and in some parts

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[1] I also wish to acknowledge Dr Nicolaidis' kind invitation to participate in the Project "Science and Orthodoxy around the World (SOW)", of which he is project director. This project has been generously funded by the Templeton World Charities Foundation. The ideas presented in this lecture are, however, entirely my own and do not necessarily represent those of the foundation.

[2] Jeff Hardin, Ronald L. Numbers and Ronald A. Binzley (eds), *"The Idea that Wouldn't Die." The Warfare between Science and Religion*: *Historical and Sociological Perspectives*, Baltimore: Johns Hopkins University Press, forthcoming.

[3] The reasoning behind, and the evidence for, this claim can be found in John Hedley Brooke, *Science and Religion: Some Historical Perspectives*, Cambridge: Cambridge University Press, 1991, republished by Cambridge University Press in its Canto Classics series in 2014. In Greek translation: *Επιστήμη και θρησκεία: Μια ιστορική προσέγγιση*, trans. Vasiliki Vakaki, Athens: Crete University Press, 2008.

of the world exert a stronger influence than ever. For the many prophets who predicted that, with the constant advance of the sciences, religions would recede and eventually disappear, their survival in a Darwinian universe has been surprising and puzzling. Given Darwin's emphasis on characteristics that promote survival in a competitive world, this survival of religion has even been described as a "Darwinian problem".[4]

There is a particular reason why I return to it here. In the weeks preceding this lecture, I became increasingly aware of a trend among some atheist writers to ignore or devalue the work of historians who, during the last 50 years, have tried to produce a more balanced picture of the engagement of science and religion than we find in the old conflict narratives of John W. Draper and Andrew Dickson White. Draper's *A History of The Conflict between Religion and Science* was published in 1874 and White's *A History of the Warfare between Science and Theology in Christendom* in 1896. Both stressed the oppression of scientists by the Church, especially, in Draper's case, the Roman Catholic Church. White, in particular, stressed the damage to science from dogmatic theology. Because their historical writing has been subject to so much criticism, I was surprised to find a very similar tone in a recent book by the British philosopher A. C. Grayling, which he entitles *The Age of Genius*.[5] His title refers to seventeenth-century Europe and to philosophers of various kinds, including Galileo and Descartes, who set the stage for a separation of "science" from "religion" by the end of that century. Grayling is aware that major figures such as Isaac Newton do not perfectly fit his model since Newton applied himself strenuously to biblical study and to questions about God's activity in the universe.[6] But the streamlined story Grayling tells is of the progressive triumph of scientific authority over religious authority, much as Draper and White told it so long ago. What caught my attention, however, was not Grayling's atheism, for which I was

[4] Robert A. Hinde, *Why Gods Persist: A Scientific Approach to Religion*, 2nd ed., London: Routledge, 2010, p. 9.

[5] A. C. Grayling, *The Age of Genius: The Seventeenth Century and the Birth of the Modern Mind*, London: Bloomsbury, 2016.

[6] Grayling writes (p. 144): "Newton thus offers an interesting example of how enquirers even of his great gifts could fail to distinguish genuine from spurious knowledge as we now understand this distinction." There is a tacit admission here of anachronism in the judgment he is passing on Newton and indeed on anyone who in the seventeenth century was not dismissive of religious truth-claims. For a properly contextual discussion of Newton's endeavours in the sphere of religion, see James E. Force and Richard Popkin (eds), *Newton and Religion: Context, Nature and Influence*, Dordrecht: Springer, 1999.

prepared, but the manner in which he treats historical scholarship that paints a more complex historical picture than his story of heroes and villains. His history is one in which scientists and philosophers are the heroes, and religious thinkers almost always the villains. For example, he has no good word for the Jesuits despite their contributions to the physical sciences and their prominence in promoting science education in the seventeenth and eighteenth centuries. Particularly striking is Grayling's tendency to dismiss as Christian apologetics any revisionist historical scholarship that paints a more complex picture of religious belief in the development of the sciences. This same tendency among the so-called "New Atheists" has been noted by others, as in a recent Newsletter of the British Society for the History of Science.[7]

Consequently, I would like to begin by noting some recent conclusions of historical research which show a role for religion in better light, but which were certainly not envisaged by their authors as a Christian apologia. My first example dates back to the late medieval period when, according to the distinguished historian of science John Heilbron, "The Roman Catholic Church gave more financial and social support to the study of astronomy for over six centuries, from the recovery of ancient learning during the late Middle Ages into the Enlightenment, than any other, and, probably, all other, institutions."[8] We can understand the appeal of Heilbron's conclusion for Christian apologists, but that is not a good reason to dismiss it when Heilbron himself had no religious axe to grind. Indeed, he immediately adds that the basis of the Church's generosity to astronomy was not a love of science but a problem in administration: how to establish and promulgate the date of Easter.

My second example comes from the seventeenth century, from Grayling's "age of genius", where the separation he sees of science from religion by the end of the century can certainly be questioned. It features as one of 25 myths about science and religion exposed in a valuable book edited by Ronald Numbers.[9] The author who attacks the separation myth, Margaret Osler, insists that seventeenth-century natural philosophers were not modern scientists: "Their exploration of the natural world was not cut off from their religious views and theological assumptions. That separation came later." There is a case for saying that in the English-speaking world that separation did not finally come until

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[7] Thony Christie, "Myths, Zombies and History of Science Story Telling", *Viewpoint* (Newsletter of the British Society for the History of Science) 111 (2016), pp. 4-5.

[8] John L. Heilbron, *The Sun in the Church: Cathedrals as Solar Observatories*, Cambridge: Harvard University Press, 1999, p. 3.

[9] Ronald L Numbers (ed.), *Galileo Goes to Jail and Other Myths about Science and Religion*, Cambridge, Harvard University Press, 2009, pp. 90-98.

the second half of the nineteenth century.[10] Crucially, Osler was no apologist for Christianity. She was an unbeliever from a Jewish family background.

A third example could be taken from the eighteenth century, when, in Britain, Christians dissenting from the orthodox Anglican Church often placed a high value on the sciences. A striking example is the Unitarian minister Joseph Priestley, well known for his work on gases, including his discovery of what we now call oxygen. Priestley argued that science and a properly rational religion were on the same side fighting against popular superstition. In a letter from America of 3 April 1800 he declared that one of his primary objects had been not to separate but to join natural philosophy to Christianity.[11] However, as the best impartial scholarship testifies, to argue for a correlation between science and religious dissent does not make one an apologist for either Christianity or Unitarianism.[12]

There have been distinguished historians of science who have argued that one of the main reasons why an enduring scientific culture took root in Western Europe was the way in which Christian theology could provide resources for the religious justification of science. Among natural philosophers such as Robert Boyle, John Ray and Isaac Newton, this was achieved by means of a natural theology in which evidence of God's power and wisdom could be discerned through the scientific study of nature. Boyle, for example, marvelled at the craftsmanship that had gone into the making of the smallest mite and was happy to describe himself as a priest in the temple of nature. Ray marvelled at the migrating and navigating instincts of birds. Newton was so impressed by the beauty of the solar system, in which the orbits of the planets appeared to have been meticulously calculated, that, in one of his letters to Richard Bentley, he ascribed them to a deity "very well skilled in mechanics and geometry". But to recognise the role of a Christian natural theology in grounding an enduring scientific culture, as scholars of the calibre of Stephen Gaukroger have done, does not make them apologists for Christianity.[13] Gaukroger, in contrast to Grayling, writes:

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[10] Peter Harrison, *The Territories of Science and Religion*, Chicago: University of Chicago Press, 2015, pp. 145-170.

[11] John Hedley Brooke, "Joining Natural Philosophy to Christianity: The Case of Joseph Priestley", in *Heterodoxy in Early Modern Science and Religion*, ed. John Brooke and Ian Maclean, Oxford: Oxford University Press, 2005, pp. 319-336.

[12] Paul Wood (ed.), *Science and Dissent in England, 1688-1945*, Aldershot: Ashgate, 2004.

[13] Stephen Gaukroger, *The Emergence of a Scientific Culture: Science and the Shaping of Modernity, 1210-1685*, Oxford: Clarendon, 2006.

> Far from science breaking free of religion in the early-modern era, its consolidation depended crucially on religion being in the driving seat: Christianity took over natural philosophy in the seventeenth century, setting its agenda and projecting it forward in a way quite different from that of any other scientific culture, and in the end establishing it as something in part constructed in the image of religion.[14]

Grayling is right that the major revolutions in science we associate with Copernicus, Newton, Darwin and Einstein have transformed our understanding of the world in ways that were not anticipated in systems of religious belief. But a streamlined history in which religion retreats with each scientific advance is seriously simplistic. It is striking, too, that none of the four giants just mentioned could fairly be described as an atheist, nor would they have accepted that description, even if their conceptions of a deity were very different.[15]

Those, like Grayling, who hope to see all religions abolished routinely look for simple definitions of the word "religion", such as systems of belief in the supernatural, which are then shown to be embarrassed by the increasing scope of naturalistic explanation. But to understand why religions survive, we need to replace essentialist definition of both "science" and "religion". We need to recognise that both are complex social practices that may take different forms in different contexts. Here I agree with the scientist Robert Hinde, who, in his book *Why Gods Persist*, argues that religions are too complex to be grasped by simple definitions. Commonly they contain many elements, such as structural beliefs, stories in which specific teachings are enshrined, rituals including the recitation of creeds, codes of personal conduct, types of religious experience and the social aspects of belonging to a faith community.[16] Interestingly, Darwin himself was sensitive to the complexity of religion as a phenomenon. In his *Descent of Man*, he had this to say about religious devotion: "The feeling of religious devotion is a highly complex one, consisting of love, complete submission to an exalted and mysterious superior, a strong sense of dependence, fear, reverence, gratitude, hope for the future, and perhaps other elements."[17]

In other words, religion is not just about whether a God exists or not. Unlike the sciences, its primary goal is not to provide explanations for the

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[14] Ibid., p. 23.

[15] John Hedley Brooke, *Of Scientists and their Gods*, Oxford: Oxford University Press, 2001; Max Jammer, *Einstein and Religion*, Princeton: Princeton University Press, 1999, pp. 48-52.

[16] Hinde, *Why Gods Persist*, pp. 10-11.

[17] Charles Darwin, *The Descent of Man, and Selection in Relation to Sex*, London: John Murray, 1871, p. 246.

way the world is. In this respect, my Oxford colleague Keith Ward draws a helpful contrast between science and religion. In his words:

> Whereas science is a matter of tentative hypotheses, religion is about being grasped by an overpowering ideal. Science offers predictive explanation, whereas religion pursues a goal that promises to integrate all life's endeavours. Science works by continued critical testing, religion by commitment to realize its ideal vision, by trust in the power which discloses it, shows the way to it and moves one towards it.[18]

As the philosopher Ludwig Wittgenstein insisted, being religious is more about passionate commitment to a reference system for interpreting the world. Interpreting, not necessarily explaining. That passionate commitment, as we know from the testimony of religious believers, can be a transforming, life-enhancing experience. It can provide solace in a suffering world and support from fellow travellers. It can reinforce moral resolve, as Darwin recognised when discussing the evolutionary development of the moral sense.[19] No doubt it can lead to forms of tyranny and enslavement. But a religious commitment may also confer a strong sense of personal identity and value. It can meet an existential need for acceptance. Consequently, it would be a mistake to identify religious phenomena with just one, or too few, of these features. For example, many have tried to explain religion away as merely a comforting opiate. But this would miss the respect in which the religious life can be deeply uncomfortable in the demands it may make. In their mission to transform the lives of individuals and societies, many of the world's religions require self-sacrifice, self-renunciation, self-dispossession. Their adoption can be painful as well as palliative.

When we examine the religious responses to Darwin, we need to bear these features and their complexity in mind. We are not simply dealing with a clash between inferior and superior science, which is how Richard Dawkins

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[18] Keith Ward, *A Vision to Pursue: Beyond the Crisis in Christianity*, London: SCM, 1991, p. vii. This passage is cited with approval by the British Orthodox priest Christopher Knight in his *The God of Nature: Incarnation and Contemporary Science*, Minneapolis: Fortress, 2007, p. 14.

[19] In his *Descent of Man*, Darwin wrote: "Ultimately our moral sense or conscience becomes a highly complex sentiment – originating in the social instincts, largely guided by the approbation of our fellow-men, ruled by reason, self-interest, and in later times by deep religious feelings, and confirmed by instruction and habit." See John Hedley Brooke, "'Ready to Aid One Another': Darwin on Nature, God, and Cooperation", in *Evolution, Games, and God: The Principle of Cooperation*, ed. Martin A. Nowak and Sarah Coakley, Cambridge: Harvard University Press, 2013, pp. 37-59, here 56.

often presents the situation. But, as one of his critics has protested, to see religion as a botched attempt to explain the world is like seeing ballet as a failed attempt to run for a bus.[20] Religious commitment is a complex phenomenon often consolidated by the embrace of distinctive social and political aims. The different elements that typically constitute a religion also tend to reinforce each other.[21] We should not, therefore, expect a simple story about the destructive or corrosive effects on religion by Darwinian science. Even within the same religious tradition, responses to Darwinism have been remarkably diverse. For example, in his recent book *Dealing with Darwin*, David Livingstone has shown how the reactions of Presbyterian Christians were different in different locations, their attitudes often shaped by highly visible local events and local politics. There was a greater receptivity to evolution in Edinburgh and Princeton, for example, than in Belfast in northern Ireland.[22]

One reason for this diversity is that Darwin's science soon provided a resource for attacks on institutionalised religion. This was true in France during the Third Republic; it was true in Germany, where Ernst Haeckel promoted a form of Darwinism that was both popular and secular; and it was true in Britain, where Darwin's "bulldog", Thomas Henry Huxley, battled against the privileges of the Anglican establishment.[23] In both Greece and Turkey, Haeckel's secular monism became a vehicle through which Darwin's science was introduced, leading to conservative religious reactions.[24] This transformation of a scientific theory into a secular ideology was particularly visible in Britain in 1874, when the physicist John Tyndall, speaking in Belfast, delivered his presidential address to the British Association for the Advancement of Science. The context was one in which Tyndall launched

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[20] Terry Eagleton, *Reason, Faith, and Revolution: Reflections on the God Debate*, New Haven: Yale University Press, 2009, p. 50.

[21] Hinde, *Why Gods Persist*, p. 234.

[22] David N. Livingstone, *Dealing with Darwin: Place, Politics, and Rhetoric in Religious Engagements with Evolution*, Baltimore: Johns Hopkins University Press, 2014.

[23] Yvette Conry, *L'introduction du Darwinisme en France au XIX Siècle*, Paris: Vrin, 1974. Alfred Kelly, *The Descent of Darwin: The Popularization of Darwinism in Germany, 1860-1914*, Chapel Hill: University of North Carolina Press, 1981. Robert J. Richards, *The Tragic Sense of Life: Ernst Haeckel and the Struggle over Evolutionary Thought*, Chicago: University of Chicago Press, 2008. Bernard V. Lightman, *Evolutionary Naturalism in Victorian Britain: The "Darwinians" and their Critics*, Farnham: Ashgate, 2009. Adrian Desmond, *Huxley: The Devil's Disciple*, London: Michael Joseph, 1994.

[24] Efthymios Nicolaidis, "Greece", and Martin Riexinger, "Turkey", in *Creationism in Europe*, ed. Stefaan Blancke, Hans Henrik Hjermitslev and Peter Kjaergaard, Baltimore: 2014, pp. 144-161, especially 146; 180-198, especially 181-182.

an attack on the failure of the Catholic Church in Ireland to encourage the teaching of science. He noted that Darwin himself had used religious language when referring to the ultimate origin of life. Darwin had spoken of life being *breathed into* the first primitive life forms.[25] But Tyndall reproached him for his timidity and lack of rigour. In the new creed of scientific naturalism there must be no room for miracles![26] This rapid and continuous translation of Darwin's science into secular ideologies has been studied by Michael Ruse, who has given his latest book the title *Darwinism as Religion*.[27] It is a title that raises big questions about the structural similarities that can be found between secular and sacred belief systems. It also complicates further any discussion of the survival of "religion" in a post-Darwinian universe. If Darwinism became a new secular religion, then of course "religion" survived the Darwinian revolution!

These Darwinist attacks on traditional religion followed a predictable pattern. If an intervening deity was no longer required to account for the origin of species, it was not required at all. And against specific Christian doctrines, such as the fallen state of humanity, there was now an inviting riposte – that man had risen from humble animal origins, not fallen. For Darwin's disciple George Romanes, the crux was not whether belief in evolution and belief in creation were compatible. In principle they were. The deeper issue was whether Darwin's mechanism of natural selection was consistent with belief in a God with the noblest attributes.[28] And there were additional problems for those who associated human uniqueness with the possession of an immortal soul, now called into question by the continuity Darwin proposed between humans and non-human animals. The move from Darwinism to militant atheism was not of Darwin's own making, but it has been a persistent one, typified by Dawkins' much quoted remark that Darwin first made it possible to be an intellectually fulfilled atheist. Paradoxically, though, if we are trying to understand the survival of religion as a phenomenon, aggressive attacks, from whichever side,

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[25] Charles Darwin, *On the Origin of Species*, London: John Murray, 1859, p. 490. In the second edition (1860), Darwin added the words "by the Creator", though these were deleted in later editions.

[26] Livingstone, *Dealing with Darwin*, 66-69.

[27] Michael Ruse, *Darwinism as Religion: What Literature tells us about Evolution*, Oxford: Oxford University Press, 2017.

[28] From a Christian background, Romanes became sceptical towards religious claims, leading to his critical examination of theism. Towards the very end of his life the evidence suggests he re-embraced Christianity. See J. David Pleins, *In Praise of Darwin: George Romanes and the Evolution of a Darwinian Believer*, New York: Bloomsbury, 2014.

are apt to elicit determined counter-attacks, with the consequence that the most conservative forms of religion are likely to be reinforced through their oppositional stance. This may be one reason why Darwin himself chose not to mount an offensive, despite his rejection of Christianity.[29]

In the remainder of this lecture I shall examine the survival of religion by focusing on serious thinkers who did not try to turn Darwinism into a religion. I shall also say very little about the survival, even growth, of fundamentalist movements that reinforce their religious identity by demonising Darwin as a calculating atheist. By contrast, Darwin denied ever having been an atheist, insisting on the distinction between agnosticism and atheism. His reasons for making that distinction may help us understand how it was possible for religious thinkers to accommodate his scientific programme.

Darwin did destroy William Paley's argument from contrivance in nature to a transcendent Contriver. In his *Natural Theology* (1802), Paley had examined many of the beautiful adaptations to be found in nature, which he ascribed to the work of a divine designer. The structure of the human eye, for example, with its provisions for protection and adjustability to different intensities of light, pointed to the work of a superior craftsman, just as the mechanism in a clock or watch provided evidence of a designer. Darwin showed how this appearance of design was deceptive: the cumulative effect of natural selection working on successive minute variations in the parts of living things was itself a perfecting process. Natural selection could counterfeit design. But it is not clear that Darwin destroyed all of Paley's system. Paley argued that the laws of nature derived from a transcendent lawgiver and that the unity and uniformity of nature reflected the work of a single Creator.[30] In his large book on natural selection, of which the *Origin of Species* was a summary, Darwin explained what he meant by "nature". This was his definition: By nature "I mean the laws ordained by God to govern the universe."[31] Robert Richards has characterised Darwin's conception of natural selection at this juncture by saying that nature

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[29] Darwin gave reasons for his gradual rejection of Christianity in his autobiography: Nora Barlow (ed.), *The Autobiography of Charles Darwin*, London: Collins, 1958, pp. 85-94. Darwin's views on religion, and Christianity in particular, are discussed by John Hedley Brooke, "Darwin and Religion: Correcting the Caricatures", *Science and Education* 19 (2010), pp. 391-405. For Darwin as one of the first anthropologists of religion, see J. David Pleins, *The Evolving God: Charles Darwin on the Naturalness of Religion*, New York: Bloomsbury, 2013.

[30] William Paley, *Natural Theology* (1802), ed. and intro. Matthew D. Eddy and David Knight, Oxford: Oxford University Press, 2006, pp. 234-236.

[31] Robert C. Stauffer (ed.), *Charles Darwin's Natural Selection, Being the Second Part of His Big Species Book Written from 1856-1858*, Cambridge: Cambridge University Press, 1975, p. 224.

"acted steadily, justly, and with divine discernment, separating the good from the bad".[32] Nature was God's surrogate. This may help to explain why, even during his later agnostic phase, Darwin declared it would be "absurd to doubt that a man may be an ardent theist and an evolutionist".[33] In a similar way it was possible for religious apologists to build on that platform of natural laws rather than on gaps in scientific knowledge. One who responded positively in that way was Frederick Temple, a future archbishop of Canterbury. As early as 1860, Temple reproached his fellow churchmen who had so often tried to make religious capital from what science could not yet explain.[34] Darwin's extension of naturalistic explanation into the sphere of species transformation was not necessarily a problem for those who interpreted the laws of nature as originating in a divine lawgiver.

A particular distinction becomes important here. This is between responses from the constituency of popular religion and responses from a more highly educated intelligentsia. Temple of course belonged to the latter. This distinction was already important in Darwin's day. In 1871, the year Darwin's *Descent of Man* appeared, a liberal Unitarian minister, Francis Ellingwood Abbot, wrote the following note to Darwin:

> If I rightly understand your great theory of the origin of species, it contains nothing *inconsistent* with the most deep and tender religious feeling. It certainly conflicts with the popular notion of God, but it seems to me to harmonize thoroughly with the enlightened ideas concerning him held by all highly cultured minds of today […] and for one I feel that you have done a vast service to true religion by your labours.[35]

This motif of a possible service to "true religion" appeared regularly among Christian intellectuals. In the nineteenth century at least, the devil did not have all the best tunes or the best soundbites. One of Darwin's earliest

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[32] Robert J. Richards, "Darwin's Theory of Natural Selection and its Moral Purpose", in *The Cambridge Companion to the 'Origin of Species'*, ed. Michael Ruse and Robert J. Richards, Cambridge: Cambridge University Press, 2009, pp. 47-66, here 61.

[33] Charles Darwin to John Fordyce, 7 May 1879, cited by Nick Spencer, *Darwin and God*, London: SPCK, 2009, p. 83.

[34] Frederick Temple, *The Present Relations of Science to Religion*, Oxford: Parker, 1860. In this sermon, preached in Oxford on 1 July 1860, the day following the famous altercation between Bishop Samuel Wilberforce and Thomas Henry Huxley, Temple positively welcomed the extension of the domain of natural law because he saw it as strengthening belief in the provenance of moral laws by which humanity was bound.

[35] Darwin Correspondence Project, "Letter no. 7912", accessed 11 December 2016, http://www.darwinproject.ac.uk/DCP-LETT-7912.

converts, the novelist, clergyman and Christian socialist Charles Kingsley, declared that formerly it was said that God was so wise He could make all things; now, in the light of evolution, God was so much wiser: He could make all things make themselves. Acknowledging receipt of a copy of the *Origin of Species*, Kingsley had delighted Darwin with his clerical support, observing that it was "as noble a conception of Deity, to believe that he created primal forms capable of self-development […] as to believe that he required a fresh act of intervention to supply the lacunas which he himself had made". He was willing to believe that the former was the "loftier thought".[36] It was a response Darwin was pleased to insert in the second edition of the *Origin* as he sought to defuse clerical animosity. Writing towards the end of the nineteenth century, an Oxford theologian, Aubrey Moore, spoke of Darwin as having, under the disguise of a foe, done the work of a friend. What he meant was the liberation of Christianity from childish, anthropomorphic images of a deity who, like a conjuror, brought new creatures into existence as if by magic. Moore gave Darwin the credit for having corrected a deistic travesty of Christianity in which God was active only when intervening:

> The one absolutely impossible conception of God, in the present day, is that which represents him as an occasional visitor. Science has pushed the deist's God further and further away, and at the moment when it seemed as if He would be thrust out altogether, Darwinism appeared, and, under the disguise of a foe, did the work of a friend […] Either God is everywhere present in nature, or He is nowhere.[37]

Parallels could certainly be drawn between Moore's sacramental understanding of nature and a similar stress on the doctrine of incarnation within those Eastern Orthodox traditions in which God is in everything and everything is in God.[38]

I come now to my main sample of thinkers for further clues about the survival of religion in a Darwinian universe. In this context I like to refer to four thinkers from the nineteenth and twentieth centuries. All were scientists, all Darwinians in their way. Each illustrates a different reason why Darwinian science has not defeated a religious sensibility; each in its own way shows how

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[36] Charles Kingsley to Charles Darwin, 18 November 1859, in Frederick Burkhardt (ed.), *The Correspondence of Charles Darwin*, vol. 7, Cambridge: Cambridge University Press, 1991, pp. 379-380.

[37] Cited by Arthur Peacocke, "Biological Evolution and Christian Theology Yesterday and Today", in *Darwinism and Divinity*, ed. John R. Durant, Oxford 1985, pp. 101-30, here 111.

[38] Christopher C. Knight, "Science and the Eastern Orthodox Church: Historical and Current Perspectives", *Science and Christian Belief* 25 (2013), pp. 37-52, here 46.

religions are not fixed species but may survive through adaptation. Darwin, after all, saw religions as evolving cultural products.

My first example is one of Darwin's most accomplished correspondents, the Harvard botanist Asa Gray. A devout Presbyterian, Gray did more to promote Darwin's concept of natural selection in North America than anyone. Gray was deeply impressed by the quality of Darwin's science, unlike his Harvard colleague Louis Agassiz who judged it "poor, very poor".[39] But there were other reasons why Gray was attracted to Darwinian evolution. For one thing it underlined the unity of the human species since all races shared a common ancestor. For Gray, as for Darwin himself, this was an intellectual resource in condemning slavery.[40] Gray also argued that Darwin's theory helped to make sense of so much pain and suffering in the world. This had long been a pressing, perhaps the most pressing, problem for theology and it can certainly be argued that, in his depiction of a fiercely competitive struggle for existence, Darwin made it worse. But Gray suggested that the theologians' problem could be lessened if the struggle for survival was a precondition of the very *possibility* of evolutionary change and, therefore, of the eventual emergence of human beings. Gray put it like this:

> Darwinian teleology has the special advantage of accounting for the imperfections and failures as well as for successes. It not only accounts for them, but turns them to practical account. It explains the seeming waste as being part and parcel of a great economical process. Without the competing multitude, no struggle for life; and without this, no natural selection and survival of the fittest, no continuous adaptation to changing surroundings, no diversification and improvement, leading from lower up to higher and nobler forms. So the most puzzling things of all to the old-school teleologists are the *principia* of the Darwinian.[41]

[39] Jon Roberts, *Darwinism and the Divine in America*, Madison: University of Wisconsin Press, 1988, pp. 34-35.

[40] Adrian Desmond and James Moore, *Darwin's Sacred Cause: Race, Slavery and the Quest for Human Origins*, London: Allen Lane, 2009.

[41] Asa Gray, "Evolutionary Teleology", in her *Darwiniana: Essays and Reviews Pertaining to Darwinism*, ed. A. Hunter Dupree, Cambridge: Harvard University Press, 1963, pp. 293-320, here 310-11. For Darwin's correspondence with Gray and the issues that divided them, see Bethany Sollereder, "The Darwin-Gray Exchange", *Theology and Science* 8 (2010), pp. 418-32; and Curtis Johnson, *Darwin's Dice: The Idea of Chance in the Thought of Charles Darwin*, Oxford: Oxford University Press, 2015, pp. 151-154.

Interestingly, a similar argument has been advanced by the contemporary evolutionary biologist Francisco Ayala in his book *Darwin's Gift to Science and Religion*.[42] Gray diverged from Darwin when he proposed that God had a guiding hand in the production of the variations on which natural selection worked. In his essay "Natural Selection not Inconsistent with Natural Theology", written in 1860 shortly after Darwin had published *On the Origin of Species*, Gray offered this advice: "so long as gradatory, orderly, and adapted forms in Nature argue design, and at least while the physical cause of variation is utterly unknown and mysterious, we should advise Mr. Darwin to assume, in the philosophy of his hypothesis, that variation has been led along certain beneficial lines".[43] Darwin, however, would not take Gray's advice. Because variations were distributed randomly, and were often disadvantageous, he could not believe they were introduced by Providence with a prospective use in mind. Nevertheless, by giving Providence an active role in shaping the course of evolution, Gray was able to keep his Christian beliefs intact. It is a nice example of the way in which the integrity of the self is preserved through the protection of a belief system.[44]

My second example may be surprising but it is none other than Darwin's advocate Thomas Henry Huxley. Despite his critique of ancient cosmologies, despite his distrust of theology, despite his anti-clericalism, Huxley still left room for a more private religion. It was a religion of feelings and moral example. It was a religion in which, as expressed by the Old Testament prophet Micah, one walked humbly with one's God. In this deconstructed form, there need be no conflict between science and religion. In fact, Huxley had strong words for those who pretended otherwise:

> The antagonism between science and religion, about which we hear so much, appears to me to be purely factitious – fabricated, on the one hand, by short-sighted religious people who confound a certain branch of science, theology, with religion; and, on the other, by

[42] Francisco Ayala, *Darwin's Gift to Science and Religion*, Washington: Joseph Henry, 2007. It is acknowledged by Christian theologians today who have re-examined the basis of such evolutionary theodicies that arguments like those of Gray and Ayala can only gain serious traction if it is presumed that no other, less bloodstained, mechanism was available and viable for generating creatures having the attributes and capacities of humankind. See, for example, Christopher Southgate, *The Groaning of Creation: God, Evolution and the Problem of Evil*, Louisville: Westminster John Knox Press, 2008, p. 90. Proving that the presumption is correct is then the problem.

[43] Gray, *Darwiniana*, pp. 121-122.

[44] Hinde, *Why Gods Persist*, p. 224.

> equally short-sighted scientific people who forget that science takes for its province only that which is susceptible of clear intellectual comprehension.[45]

Huxley's stance reminds us that how we define "science" and how we define "religion" inevitably determine how the relations between them are understood.[46] Just as Gray has a modern representative in Ayala, so Huxley has his modern representatives. I am thinking of the Darwin scholar Philip Kitcher, who, in his book *Living with Darwin*, argues that Enlightenment critiques of supernaturalism still leave open the possibility of what he calls "spiritual religion".[47] Versions of this, he suggests, can still be generated by the major Western monotheisms, even as they renounce the literal truth of their stories. In the crucifixion of Jesus Christ, for example, he sees a symbolic presentation of the importance of compassion and unlimited love. What matters here are the deliverances for self-understanding, for self-improvement and for action towards others. The survival of this "spiritual religion" is not without its own problems because, as Kitcher points out, it can be difficult for its protagonists to articulate what it adds to the imperatives of compassion and social justice that secular humanists themselves enthusiastically endorse.[48]

My third figure also distinguished clearly between institutionalised religion and more individual forms of religious experience. William James was more psychologist than evolutionary biologist, but he had been deeply affected by Darwin's science, sensing a determinism that threatened the primacy of free will in human action while, at the same time, having to confront the role of chance in Darwin's depiction of nature. In his influential book *The Varieties of Religious Experience*, James referred to a new temper of the scientific imagination, symbolised by Darwinism. "It is impossible," he wrote, "in the present temper of the scientific imagination, to find in the driftings of the cosmic atoms, whether they work on the universal or on the particular scale, anything but a kind of aimless weather."[49]

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[45] T. H. Huxley, *Science and Hebrew Tradition*, New York: Appleton, 1898, pp. 160-61. Bernard Lightman, "Victorian Sciences and Religions", in *Science in Theistic Contexts: Cognitive Dimensions*, ed. John Hedley Brooke, Margaret J. Osler and Jitse M. van der Meer, Chicago: University of Chicago Press, 2001, pp. 343-366, here 348.

[46] Harrison, *The Territories of Science and Religion*.

[47] Philip Kitcher, *Living with Darwin,* New York: Oxford University Press, 2007, pp. 152-154.

[48] Ibid., 154.

[49] William James, *The Varieties of Religious Experience* [1902], New York: Barnes & Noble Classics, 2004, 423.

From his research, James concluded that the essence of religion did not consist in theological reasoning but in the promise of richer and more satisfying lives. Those for whom the promise became real had the assurance that an unseen force was aligned on their side when fighting moral battles. James even suggested that beliefs that were luminous, reasonable and morally uplifting could, in a sense, be "verified" if they had edifying consequences for one's life. This meant for James that the juxtaposition of "science" and "religion" was not a crude antithesis between verified science and blind faith. In private correspondence, James said that his intention was to make the reader believe "what I myself invincibly do believe, that, although all the special manifestations of religion may have been absurd […] yet the life of it as a whole is mankind's most important function".[50] There were also practical consequences of his analysis, which for some can be consoling, for others in our modern world terrifying. He wrote: "Every sort of energy and endurance, of courage and capacity for handling life's evils, is set free in those who have religious faith. For this reason the strenuous type of character will on the battle-field of human history always outwear the easy-going type, and religion will drive irreligion to the wall."[51] In a Darwinian universe, not only would religion survive, it was the religious who were best fitted to survive.

My last example is one of the most distinguished evolutionary biologists of the twentieth century: Theodosius Dobzhansky. Admired for his contribution to population genetics, Dobzhansky, in common with other prominent geneticists such as Ronald Fisher, saw an overarching progress in the pattern of evolutionary development. One of his assertions probably wins the prize for the most quoted scientific motto on the web: "Nothing in biology makes sense except in the light of evolution." It is perhaps less well known that Dobzhansky belonged to the Russian Orthodox Church and saw no definitive threat to his faith from his science. Indeed, his career as an Orthodox scientist of distinction brings into focus some of the issues that arise when the historical relations between Orthodoxy and science are considered.[52]

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[50] William James, Letter to Frances Morse, cited by Ruth Anna Putnam, "William James", in *The Routledge Companion to Philosophy of Religion*, ed. Chad Meister and Paul Copan, New York: Routledge, 2007, pp. 181-190, here 183.

[51] William James, *The Will to Believe and Other Essays in Popular Theology*, New York: Longmans, Green, 1899, p. 213.

[52] For an introduction to this subject, see Efthymios Nicolaidis, Eudoxie Dellie, Nikolaos Livanos, Kostas Tampakis, and George Vlahakis, "Science and Orthodox Christianity: An Overview", *Isis* 107 (2016), 542-566, accompanied (pp. 567-596) by commentaries from

In the same year (1973) that he declared his conviction that without evolution nothing in biology made sense, Dobzhansky also declared that "only through religious faith can one gain assurance that the evolution of the universe will not be in vain".[53] From his Orthodox roots, he had gained the conviction that the universe did have a meaningful history. Indeed, the concept of evolution bound together his faith and his science. In his book *The Biology of Ultimate Concern* (1967) and in a letter to John Greene, written on 23 November 1961, Dobzhansky was explicit:

> Christianity is basically evolutionistic. It affirms that the meaning of history lies in the progression from Creation, through Redemption, to the City of God. Evolution (cosmic and biological and human) is going towards something, we hope some city of God.[54]

There were questions that science could not answer, such as whether there were purposes in the universe hidden from human observation. But Dobzhansky had no doubt that evolutionary progress, "like everything in the world", was a manifestation of God's activity. Religious belief could survive in his mind because Dobzhansky, in common with other Orthodox thinkers, notably Vladimir Solovyev, to whose writings he was indebted, interpreted evolutionary progress as divine incarnation.[55] It was in and through man that the continuing divine incarnation was taking place. Evolutionary progress, as Solovyev had presented it, justified natural suffering as salvation justified spiritual suffering. God's relation to the created order was, for Solovyev, best understood through the concept of panentheism – that all is in God – rather than through the traditional concepts of dualism, materialism, monism, or pantheism.[56]

The close relationship between Dobzhansky's Orthodox faith and his interpretation of evolution has even allowed some scholars, for example Michael Ruse and Jitse van der Meer, to argue that his religious vision of

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Christoph Lüthy, Karl Hall and Dimitri Bayuk, Robert Morrison, Yakov M. Rabkin, Peter Harrison, John Hedley Brooke and Ronald L. Numbers.

[53] Theodosius Dobzhansky, "On Human Life", *St. Vladimir's Theological Quarterly* 17 (1973), pp. 100-104, here 104, cited by Jitse M. van der Meer, "Theodosius Dobzhansky", in *Eminent Lives in Twentieth-Century Science and Religion*, ed. Nicolaas A. Rupke, Frankfurt am Main: Peter Lang, 2007, pp. 79-101, here 96.

[54] Van der Meer, "Theodosius Dobzhansky", p. 81

[55] Ibid., pp. 81 and 87.

[56] Paul L. Gavrilyuk, "Eastern Orthodoxy", in *The Routledge Companion to Philosophy of Religion*, ed. Chad Meister and Paul Copan, London: Routledge, 2007, pp. 476-486, here 483.

cosmic progression actually shaped his thinking in biology.[57] Dobzhansky conceived the evolution of the universe as in some sense "a struggle for a gradual emergence of freedom".[58] As with Solovyev, he saw an analogy between evolutionary progress through conflict and spiritual progress through suffering. Dobzhansky himself was no stranger to suffering and was well aware of its anti-theistic treatment by Dostoevsky. But he found a way of mediating between Darwinism and Dostoevsky by regarding natural evil and the suffering of nature as the price that had to be paid for the emergence of natural freedoms, most importantly of course: human freedom.

A brief passage from Dobzhansky's book *Mankind Evolving* illustrates yet another way in which religious belief and evolutionary biology could coexist, this time through the reinterpretation of religious doctrine in the light of science. The doctrine in question is that of Adam's Fall as recounted in the Book of Genesis, with its physical consequences if read literally as history. Recent scholarship has pointed out that, in Eastern Orthodoxy, an Augustinian understanding of the Fall was less pronounced than it became during the Protestant Reformation in the West. In this contrast has been seen one of the reasons why a higher value was placed on empirical science in Western Europe during the seventeenth century. As Francis Bacon had argued, the fruitful application of scientific knowledge could help to restore the dominion over nature that had been God's original intention for humankind but sacrificed as a consequence of the Fall.[59] Here is Dobzhansky's take on the doctrine as he integrates his Orthodox theology with an evolutionary account of human self-consciousness:

> The meaning of the acquisition of self-awareness in human evolution is expressed beautifully in the biblical symbol of the Fall of Man. Self-awareness is a blessing and a curse. Through self-awareness man attained the status of a person in the existential sense: he became conscious of himself and of his environment […] Self-awareness and foresight brought, however, the awesome gifts of freedom and responsibility […] Man knows that he is accountable for his acts:

[57] Michael Ruse, *Monad to Man: The Concept of Progress in Evolutionary Biology*, Cambridge: Harvard University Press, 1996, pp. 394-401; Van der Meer, "Theodosius Dobzhansky".

[58] Theodosius Dobzhansky, *The Biology of Ultimate Concern*, New Haven: New American Library, 1967, p. 120.

[59] Peter Harrison, *The Fall of Man and the Foundations of Science*, Cambridge: Cambridge University Press, 2007, and "Science, Eastern Orthodoxy and Protestantism", *Isis* 107 (2016), pp. 587-591.

> he has acquired the knowledge of good and evil. This is a dreadfully heavy load to carry. No other animal has to withstand anything like it. There is a tragic discord in the soul of man.[60]

This was the survival of Christianity in an educated, symbolic and existentialist form. But in every religious tradition there are recurrent tensions between reformist and more conservative factions. His was not an articulation of the faith that pleased Dobzhansky's critics in the Greek and Russian Orthodox churches. The science of evolution had not threatened *his* faith, but he was bitterly disappointed that conservative opinion within Orthodoxy could be a threat to science. Dr Nicolaidis has described what happened when Dobzhansky was invited in 1969 to a conference organised by the Greek Anthropological Society. Dobzhansky was disappointed and bitterly upset when he received personal attacks from Greek theologians, especially Marcos Siotis of the University of Athens.[61] In these attacks a literal reading of the Book of Genesis was placed in judgement over Darwin's brute ancestry for humans, a pattern familiar today in creationist rhetoric. Dobzhansky had a simple response: humans were indeed created in God's image but by means of evolutionary development. He consoled himself with the observation that "the narrow-minded rigidity of the Greek section is not shared by the Eastern Church as a whole".[62] I am grateful to Dr Nicolaidis because his essay, in a book on creationism in Europe, reminds us that the survival of conservative religious systems can depend crucially on political circumstances. One of the many examples he gives concerns the seven-year dictatorship of the colonels in Greece from 1967 to 1974 when, in schools, the mandatory course on religion was more an Orthodox catechism than an academic study of religion and when creationism and antievolutionism were promoted.[63] A converse example would be the way in which religions, when a source of national identity, can gain particular vitality when they have an oppressive political target to oppose, as in resistance to communist polities and ideals. This has a particular poignancy when the science – in this case a materialist interpretation of Darwinism – is appropriated by the regime in power. One consequence is then a rejection, or at least a deep suspicion, of the science by representatives of the Church. Where there is suspicion, this can easily translate into a defensive strategy of indifference to, and insulation from, the science itself. I would like to suggest that we need to examine more closely

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[60] Theodosius Dobzhansky, *Mankind Evolving*, New Haven: Yale University Press 1962, p. 338.

[61] Nicolaidis, "Greece", p. 150.

[62] Ibid.

[63] Ibid.

the varieties and sources of indifference towards science, which has certainly featured as a stratagem within the life of the Orthodox Church, where a recurring disinclination to engage with Darwinism has certainly been identified.[64]

I have been suggesting in this lecture some of the reasons why religious beliefs, movements and institutions have been able to survive in a Darwinian universe. Despite the harm and misery that the abuse of religious power has brought to the world, the great religions at their best have been champions of the oppressed. They have offered hope and consolation that a philosophy built on science alone is generally unable to provide.[65] Religions have survived as reference systems for interpreting a world investigated and explained, within limits, by science. Darwin's theory of evolution by natural selection did constitute a challenge to traditional forms of religious belief. Within Christianity it certainly proved to be a divisive force, which is hardly surprising given that Darwin's science was exploited by materialists in politics and philosophy. But we have also seen how resilient religious believers and their communities can be. Laws of nature could still be ascribed to a divine Creator, as Darwin himself, certainly until the 1860s, was inclined to do. Christian intellectuals even believed that Darwin had been a friend to religion by rescuing it from naive models of God's action in the world. My four brief sketches of Asa Gray, Thomas Huxley, William James and Theodosius Dobzhansky have illustrated four further aspects of the survival of religion: adaptability to change, as when Gray argued that Darwin's theory could help theologians with their problem of suffering; the survival of privatised forms of religion, especially in relation to morality, which Huxley was willing to defend; the survival of religion by virtue of its power to inspire courage and endurance in facing life's evils, as James believed; and, fourthly, as we saw in Dobzhansky, the survival of a mainstream religion, through the reinterpretation of its stories and symbols in the light of scientific knowledge. These are some of the reasons why I believe we have to revisit and resist the common assumption that scientific progress has been the main cause of secularisation.[66]

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[64] Maria Zarimis, *Darwin's Footprint: Cultural Perspectives on Evolution in Greece (1880-1930s)*, Budapest: Central European University Press, 2015. Zarimis shows how pressure for insularity came both from Darwinian commentators, who would make such remarks as "the pulpit, from where it is necessary to teach exclusively Christian morality, has nothing in common with science" (p. 16), and from a Church reluctant to make official pronouncements on, or engage in dialogue with, Darwinian science (p. 290).

[65] Kitcher, *Living with Darwin*, pp. 158-162.

[66] John Hedley Brooke, "Science and Secularization", in *The Cambridge Companion to Science and Religion*, ed. Peter Harrison, Cambridge: Cambridge University Press, 2010, pp. 103-123.

I would, however, like to conclude by referring to one last respect in which Darwin's science has had a definite impact on our understanding of religion. This is Darwin's inspiration for naturalistic accounts of how religious beliefs originated in the first place, an aspect of his anthropology that has recently been re-emphasised.[67] One among many current models puts the spotlight on what has been called a hyperactive agent detection device, a cognitive module in the human brain that readily ascribes events in the environment to the behaviour of agents. When linked to the reasonable presumption that natural selection would favour hypersensitivity to the signals of predators and prey, a plausible hypothesis can be constructed as to why, in early human history, it would have been natural to see invisible spirits and gods behind inexplicable natural phenomena.[68] I think Darwin *would* have given his imprimatur to this particular model. In his *Descent of Man*, he comments on the behaviour of his dog. One summer's day it suddenly barked at a parasol swaying in the breeze. Darwin surmised that "he must […] have reasoned to himself […] that movement without any apparent cause indicated the presence of some strange living agent, and that no stranger had a right to be on his territory."[69] For Darwin there was an obvious connection with early animism among humans. One of the difficulties of the model is that it does not sufficiently explain how a sense of the sacred became incorporated into beliefs about the existence of invisible forces. But, as the Darwin scholar Maxine Sheets-Johnstone has insisted, the model can be enriched by reference to an observation of the existentialist writer Jean-Paul Sartre.[70] The point that Sartre makes is that far more significant than the detection of someone is the sense of vulnerability this brings with it:

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[67] Pleins, *The Evolving God*.

[68] Pascal Boyer, *Religion Explained: The Evolutionary Origins of Religious Thought*, New York: Basic, 2001. Justin L. Barrett, *Why Would Anyone Believe in God?*, Lanham: AltaMira, 2004. Barrett's argument that the human mind is structured in such a way that belief in God can be regarded as a natural consequence has been cheaply criticised by A. C. Grayling as the product of religious motivation and funding by the John Templeton Foundation. Barrett's reply to Grayling expresses similar concerns to those I outlined at the beginning of this lecture. He refutes allegations of apologetic intent by pointing out that atheists, such as Pascal Boyer and Scott Altran, have favoured an approach similar to his own. For Barrett's censure of Grayling see "Let's stick to the science", TheGuardian.com, https://www.theguardian.com/commentisfree/2008/nov/29/religion-children, accessed 17 December 2016.

[69] Charles Darwin, *The Descent of Man* [1871], London: Murray, 1906, pp. 144-145.

[70] Maxine Sheets-Johnstone, "Strangers, Trust and Religion: On the Vulnerability of Being Alive", *Human Studies* 38 (2015), pp. 167-187.

> What I apprehend immediately when I hear the branches crackling behind me is not that there is someone there; it is that I am vulnerable, that I have a body which can be hurt, that I occupy a place and that I can not in any case escape from the space in which I am without defence – in short, that I am seen.[71]

To be human is to be vulnerable and, for Sheets-Johnstone, it is this fear and vulnerability that help to explain the origins of a religious sensibility. She appeals to the *Confession* of Leo Tolstoy to strengthen her case: "I say that that search for God was not reasoning, but a feeling, because that search proceeded not from the course of my thoughts – it was even directly contrary to them – but proceeded from the heart. It was a feeling of fear, orphanage, isolation in a strange land, and a hope of help from someone."[72]

It is difficult not to believe that religions will continue to survive where they offer hope and meet deep human needs. Darwin himself was well aware that his view of nature still left room for theological interpretation. As he conceded to Asa Gray in May 1860, "I can see no reason why a man, or other animal, may not have been aboriginally produced by […] laws; and that all these laws may have been expressly designed by an Omniscient Creator, who foresaw every future event and consequence."[73]

But then, with the honesty and humility that make Darwin so endearing, there immediately follows a characteristic nuance: "The more I think [about the subject] the more bewildered I become."

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[71] Jean-Paul Sartre, *Being and Nothingness*, trans. H. E. Barnes, New York: Philosophical Library, 1956, p. 259.

[72] Leo Tolstoy, "A Confession", in *Exploring the Philosophy of Religion*, ed. David Stewart, 3rd edn., Englewood Cliffs: Prentice-Hall, 1992, pp. 351-356, here 354.

[73] Charles Darwin to Asa Gray, 22 May 1860, in Frederick Burkhardt (ed.), *The Correspondence of Charles Darwin*, vol. 8, Cambridge: Cambridge University Press, 1993, pp. 223-224.