Religious Minds in the Modern Evolutionary Synthesis

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Abstract: The study of evolutionary biology at contemporary universities unfolds through the lens of the Modern Evolutionary Synthesis (MES). Historically, this constitutes the official marriage of classical Darwinian evolutionary biology and modern genetics, so that one cannot be studied without the other. In addition, a genetic lens is always applied to evolutionary biology, and genetics is understood evolutionarily. The founders of the MES included three prominent figures who were church-attending believers. This fact is often overlooked and unappreciated, especially by extremists on both sides of the creation vs evolution debate in the West. Herein, I examine the faith commitments and publicly expressed views of Theodosius Dobzhansky, Sewall Wright, and Ronald Aylmer Fisher. I also explore the implications of their understanding for the competing narratives, and why these figures are not more commonly known in the science and religion dialogue.

Keywords: evolutionary biology; genetics; Modern Evolutionary Synthesis; natural selection; panpsychism; science and religion

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This paper is a brief exploration of the religious faith of three of the most important figures in the Modern Evolutionary Synthesis (henceforth MES), also known as "Neo-Darwinism."[1] It highlights the importance of the matter that three significant figures in a pivotal moment in the history of evolutionary biology espoused religious convictions. The fact is usually passed over in silence.[2] The MES was birthed in 1942 under Julian Huxley. Its key players included field biologist Ernst Mayr, palaeontologist George Gaylord Simpson, botanist and geneticist G. Ledyard Stebbins, geneticist Theodosius Dobzhansky, mathematician and statistician Ronald Aylmer Fisher, and population geneticist Sewell Wright. Others contributed to the acceptance of this merger into a cohesive, grand unifying theory of biology.

Charles Darwin had articulated the idea of natural selection in 1859, in *On the Origin of Species*.[3] Gregor Mendel, a friar from Brno, later developed the ideas that would become the basis of genetics.[4] Though Darwin considered the method of inheritance of characteristics and even had a copy of Mendel's article in his home, he never appreciated the significance of genetics. Mendel's work on pea plants gave a biological mechanism for evolution to complement natural selection.[5] From 1900, debates grew over the preeminence of either selection or mutation. Thomas Hunt Morgan in his groundbreaking work on fruit

1 There are subtle differences between the two but for the purposes of this article I shall not go into these, instead referring to the marriage of ideas here as the MES.

2 See Richard Dawkins, *The God Delusion* (London: Black Swan, 2006), 103, 411; Michael Ruse, *Can a Darwinian Be a Christian?* (Cambridge: Cambridge University Press, 2010), 8–9. For example, as Dawkins asserts elsewhere, "Although atheism might have been logically tenable before Darwin, Darwin made it possible to be an intellectually fulfilled atheist." Richard Dawkins, *The Blind Watchmaker* (New York: W.W. Norton & Co, 2015), 18.

3 Charles Darwin, *On the Origin of Species* (New York: Dover, 2006; first edn 1859).

4 See Ilona Miko, "Gregor Mendel and the Principles of Inheritance," *Nature Education* 1:1 (2008): 134.

5 See N. C. Stenseth et al., "Gregor Johann Mendel and the Development of Modern Evolutionary Biology," *Proceedings of the National Academy of Sciences of the United States of America* 119:30 (2022): e2201327119, https://doi.org/10.1073/pnas.2201327119.

flies, and Barbara McClintock in her research on maize, continued to place genetics at the forefront of evolutionary biology. Once the Second World War had ended, it had become apparent that natural selection and Darwin's ideas in *The Origin of Species* were essential players in evolution, and mutation alone could not account for change.

The synthesis saw Mendel's and Darwin's ideas brought together into an agreed formulation of modern evolutionary biology. Huxley deserves great credit for articulating this in his 1942 work *Evolution: The Modern Synthesis*, but it was the collaboration between scientists of different backgrounds, from the field work of Ernst Mayr to the mathematics of Ronald Aylmer Fisher, that gave it the most credence. Here, the largest scale macroevolutionary picture of species and populations could be brought into the same conception as the micro scale world of mutation in nucleic acids and proteins.

As I shall attempt to show, the contributors to the articulation of the MES had no religious or antireligious motivations. It was a scientific forum, not a philosophical one, no matter how much the discipline continues to court wonder and reflection. A great example of this is George Gaylord Simpson, a titan of palaeontology and one of the most important figures in the history of evolutionary biology. In his early life, he was a committed Christian, becoming an agnostic as an adult, though certainly no atheist. By the end of his life, he could be described as a functional atheist with more materialistic leanings. But even here, despite giving up his faith, he maintained a fierce agnostic streak that ultimate knowledge of the underlying dynamic that drove the development of life remained beyond human comprehension.[6] The scientific background had been agreed, but the philosophical picture was anything but clear. Three other crucial thinkers who contributed vital elements of the MES will be given particular attention in this article.

I shall here note that this article focuses on these personalities who contributed during the earliest days of the MES. The molecular biology revolution unfolded dramatically in the generation follow-

6 See Léo F. Laporte (ed.), *Simple Curiosity: Letters from Gaylord Simpson to His Family, 1921–1970* (Berkeley, CA: University of California Press, 1987), 16.

ing their most important work. Undoubtedly the elucidation of the structure of DNA, the genetic code, the advent of sequencing, and their associated breakthroughs would shed new light on evolution as well as bring new levels of reflection, as was seen from the likes of Arthur Peacocke.[7]

Theodosius Dobzhansky

Population genetics was one of the most important drivers of the MES. It helped establish mathematical models to quantify aspects of evolution as the discipline of genetics itself was growing. Gene sequencing came shortly after the MES was generated, most importantly through the groundbreaking work of the double Nobel laureate Fred Sanger at Cambridge. Population genetics understandably brought both genetic variation and natural selection into close contact. Bottlenecks, genetic drift, and other drivers of speciation could be examined for the past, present, and even future predictions, as they related to adaptation, speciation, and the structure of populations. Theodosius Dobzhansky was one of the most important voices in this field. He contributed much original thought, was a fine communicator to academics and popular audiences, and his textbooks on evolution are still of outstanding quality half a century later. Depending on whom you ask, he can be counted as one of the most important evolutionary biologists since Darwin. He was also a winsome and popular figure who was happy to engage with critics and rivals both in print and in person.

Though not aggressive in debating his position, Dobzhansky was a committed Orthodox Christian who continually sought to bring the conversation about ultimate meaning from evolution to the fore. It is perhaps of little surprise that one of the biologists who expended the most effort in bringing about a synthesis of evolutionary biology and modern genetics also strived immensely towards a synthesis of

7 For example, Arthur Peacocke, *God and the New Biology* (London: Harper Collins, 1987).

evolutionary biology and religious faith.[8] Synthesising knowledge was simply part of who Dobzhansky was.[9]

Perhaps the most famous quote of the entire discipline in the twentieth century comes from Dobzhansky's plume: "Nothing in biology makes sense except in the light of evolution."[10] He is one of the most important figures in bridging genetics and classical Darwinism. He was also perhaps the most important voice during his lifetime in propounding theistic evolution as a popular perspective.

A popular science communicator, in *Biology of Ultimate Concern*,[11] he went beyond the exposition of science for the broad public by exploring the fundamental questions of meaning and purpose raised by genetics and evolutionary biology. In *The Wisdom of Evolution*, by Raymond J. Nogar, Dobzhansky contributed the foreword[12] to a large work exploring the mind behind evolution and its theistic implications. Dobzhansky argues there that a Thomistic and Catholic doctrine of creation is the most compatible philosophy behind evolution as creation, whilst dismissing materialistic explanations as unsatisfactory. He never regarded evolution as an ideology or doctrine, but he was greatly influenced by the palaeontologist and priest Pierre Teilhard de Chardin.

Viewing evolution as the method of God's creation, science and religion were never opposing forces to Dobzhansky. Indeed, the very thought of antagonism was bizarre to him. His *The Biology of Ultimate Concern* is a little-heralded treasure of reflection on religious faith and evolutionary biology. In this work, Dobzhansky engages not only

8 Theodosius Dobzhansky, *Mankind Evolving* (London: Yale University Press, 1962), xi.

9 Christopher Howell, "Between Darwin and Dostoevsky: The Syntheses of Theodosius Dobzhansky," *Christian Perspectives on Science and Technology*, New Series, Vol. 1 (2022), 28–45, https://doi.org/10.58913/LGSN7318.

10 Theodosius Dobzhansky et al., *Evolution* (San Francisco: W. H. Freeman and Company, 1977), 19.

11 Theodosius Dobzhansky, *The Biology of Ultimate Concern* (London: Rapp and Whiting Ltd, 1969).

12 Raymond J. Nogar, *The Wisdom of Evolution* (New York: Doubleday and Company, 1963).

Teilhard de Chardin, but also theologians such as Paul Tillich and others, which shows the breadth of his theological reflection. His most famous student was Francisco Ayala, who was a Dominican priest, and both have contributed frequently to the area of philosophy of biology. These contributions, alongside *The Biology of Ultimate Concern*, remain a treasure-trove for theistic evolution and the theology of the life sciences. Dobzhansky's thinking influenced Catholic, Orthodox, and other Christian traditions, especially of the mystical kind.

Dobzhansky, perhaps more than anyone else, must be taken seriously by those considering evolution and Christian faith. Because of the claims of Dawkins and others that evolution has eroded any realistic basis for religious faith in the creation of life, Dobzhansky's contributions as a prominent evolutionary biologist and outspoken Christian in this era would seem impossible; this makes his personality and input more relevant to the discussion than ever before. His stance is also a great historical inconvenience to those of the Intelligent Design position and to the critics of theistic evolution, who never mention his ideas.[13] The same goes for our next two figures.

Sewall Wright

Sewall Wright was another geneticist intimately involved in the MES who had strong religious commitments. He regularly attended Unitarian church each week with his wife,[14] and continued to practise his faith all his life.[15]

Wright was a major contributor to the birth of population genetics, alongside J. B. S. Haldane. (Population genetics deals with inherent

13 Indeed, a search for all three names in the Intelligent Design journal *Biocomplexity* yields no results. References to Dobzhansky in *Evolution News* are almost entirely reduced to mentioning his most famous quote (see note 10 above).

14 William B. Provine, *Sewall Wright and Evolutionary Biology* (Chicago: University of Chicago Press, 1989), 460, 497.

15 Michael Ruse, *Monad to Man: The Concept of Progress in Evolutionary Biology* (Cambridge, MA: Harvard University Press, 1996), 376.

genetic differences within and between populations, and was crucial for establishing the MES.) With Wright, as with Fisher, the mathematical and statistical element grew in importance within modern genetics, making evolutionary biology more of a statistical and measurable science that could be practised in the field and applied to living populations. This took evolutionary biology far beyond the mere finding and cataloguing of fossils. His work was essential in establishing ideas such as genetic drift and path analysis, which are common parlance in evolutionary biology today. What Wright contributed—alongside Fisher—was a computational analysis of gene frequencies in populations, where natural selection could be seen mathematically in tandem with genetic information such as mutation, migration, and drift. This led to evolution being understood more as the change in gene/allele frequency within a population over time. Modern genetics, particularly since the development of genomics and gene sequencing methods in the field, developed these concepts further, but at the time of the birth of the MES this was a transformative step.

Wright's other success came in the subtlety of his approach and its winsome manner in blending population genetics and statistics with the work of field naturalists like Ernst Mayr. There had been growing disparagement of what was mockingly called the "beanbag" approach to population genetics. Mayr and others put a huge premium on geographic isolation for speciation, and Wright also emphasised genetic interactions in smaller populations. He was instrumental in bringing these parties together more effectively.[16]

Wright was more ambitious in venturing into philosophy than others in the MES. The philosopher Charles Hartshorne became one of his best friends and the two collaborated often in writing.[17] Hartshorne placed great emphasis on mind, and Wright endorsed

16 Peter Bowler, *Evolution: The History of an Idea* (Berkeley: University of California Press, 1989), 309.

17 See for example his tribute to Hartshorne: Sewall Wright, "Biology and the Philosophy of Science," *The Monist* 48:2 (1964): 265–288, https://doi.org/10.5840/monist196448215.

a form of what we now call panpsychism (more popularly understood today by recent convert and philosopher of mind, Philip Goff[18]). Consciousness and its formation were foundational and fundamental, leading to Wright theorising their presence in the smallest elementary particles.[19] This is in keeping with modern panpsychism and its idea of every atom possessing consciousness in some rudimentary form, with the universe itself painted against a backdrop of consciousness.

Unitarianism does not feature much in discussions around science and religion, partly due to the Unitarian church being much smaller, and partly as few scientists of that background have ventured into philosophy. Wright is a rare exception, though not forthcoming in religious defence. He happened to be a scientist who attended a Unitarian church, his openness to spirituality finding expression in the idealist philosophy and kindred spirit of Charles Hartshorne, who was a devoted religious observer. One can only speculate on the role of faith in developing Wright's idealism and on whether he equated mind and spirit in a traditional sense. It is unfortunate to have to speculate—in the absence of sources—as to what their private conversations may have revealed of Wright's religious commitments. What is certain is that, much as with the Quaker scientists of his generation, such as Sir Arthur Eddington, religious worldviews were often communicated by way of the philosophy of science, especially the philosophy of the mind, not in conversation with science proper.

Ronald Aylmer Fisher

R. A. Fisher was a British population geneticist and statistician who contributed the mathematical elements of evolutionary biology more than anyone else in the MES. He was the archetype of the English

18 Philip Goff, *Why? The Purpose of the Universe* (Oxford: Oxford University Press, 2023).

19 David M. Steffes, "Panpsychic Organicism: Sewall Wright's Philosophy for Understanding Complex Genetic Systems," *Journal of the History of Biology* 40:2 (2007): 327–361.

gentleman of the time: conservative, Anglican, and patriotic. Much as with Dobzhansky, he was more than ready to speak in public about his faith, and sought to explore the new science as a theist. This grew as his name did, and as he aged he took more opportunities to express his faith across different media.

Fisher must be considered among the greatest statisticians of history and one of the fathers of the enterprise of statistical analysis. His 1950 book *Contributions to Mathematical Statistics* is still venerated as a seminal work in the birth of the field. His main work for the MES was *The Genetical Theory of Natural Selection*,[20] which writers such as Richard Dawkins and Stephen Jay Gould have heralded as the most important text in evolutionary biology after Darwin.[21] His application of statistical methodology to the emerging Mendelian genetics threw open practical evolutionary biology, moving it from the qualitative into the quantitative.

Fisher was a resolutely committed Anglican. He conducted his scientific work with devotion and then brought his devotion to science to bear in church. He wrote often for Christian magazines, gave lectures on science and religion, including his 1950 Eddington Memorial Lecture, titled "Creative Aspects of Natural Law." In the latter, he said the following:

> It is, therefore, almost axiomatic that the process by which living things, as we know them, have come gradually into existence, is, in the fullest sense, a creative process … It is almost like saying that Creation is creative; the only new implication, and it is an important one, that the phrase now has is that for us creation is still going on.[22]

20 Ronald Aylmer Fisher, *The Genetical Theory of Natural Selection* (London: Legare Street Press, 2022).

21 James Moore, "Ronald Aylmer Fisher: A Faith Fit for Eugenics," in *Eminent Lives in Twentieth-Century Science & Religion*, ed. Nicolaas A. Rupke (Frankfurt: Peter Lang, 2009), 182.

22 R. A. Fisher, *Creative Aspects of Natural Law* (Cambridge: Cambridge University Press, 1950), 4.

As we can see, he was certainly never shy in sharing his Christian philosophy and worldview interpretation of the new science when given a public platform. During this period of great international travel, high levels of communication, and overseas influence, academia and popular communication featured heavily with lectureships and symposiums meant to disseminate knowledge more broadly. The Gifford Lectures were arguably the premier annual lectureship at the nexus of science, philosophy, and religion. The University of Cambridge's newly established annual Sir Arthur Eddington Memorial Lectureship would grow alongside it, with the lectures published by Cambridge University Press. Fisher's choice of title and subject matter is notable for his desire to communicate the MES alongside his faith in this way, as is the fact that he was chosen to be the first biologist to give a lecture in the series.

Though vitalism was no longer a viable view in the life sciences, with the birth of molecular biology on the horizon, many believing scientists pondered the nature of life and its various levels, from the microbial to humankind. For some laypeople, church leaders, and many philosophers of religion, the demise of vitalism was a serious blow to Christian apologetics, as it removed what had previously been a seemingly self-evident argument for God. Not so with Fisher or the early generations of religious scientists during the MES. Fisher would often reflect on the nature of life in a philosophical manner in his printed lectures.

In 1955, he gave a broadcast on science and Christianity,[23] where he was critical of dogmatism and hypocrisy, which he saw as unlike Christ. For Fisher, there was no basis for rejecting either evolution on biblical grounds or the Bible on account of the new science. He treated his work as a calling to discover deeper truths about the world. As with Wright, he pursued mind and evolution in a form of panpsychism, being involved with the Society for Psychical Research.

23 F. Yates and K. Mather, "Ronald Aylmer Fisher 1890–1962," *Biographical Memoirs of Fellows of the Royal Society* 9 (1963): 91–129.

Unfortunately, Fisher became involved in the enthusiasm for eugenics.[24] Though not drawn to the ideas of the Nazis, he nevertheless saw genetics as a route to improving humanity through more selective breeding. Much in the vein of other evolutionary biologists such as Francis Galton and Horace Darwin, he held the view that a better British generation could be conceived if more care was taken in partner choice and proactive, selective breeding, rather than leaving things to the chance hand of nature. For these thinkers, it was careless and even reckless to not be more intentional in thinking about progeny.

Tension between eugenics and his faith is hard to find in his writings. It is almost as if it did not occur to Fisher. This has left a historical blight on his name, and despite *Genetical Theory* still being a famous text in the history of that science, students are less inclined to give attention to the later chapters that address eugenics. It must be noted here that, according to some philosophers of science, Christianity and evolutionary biology were the pillars of Fisher's eugenic motivations.[25]

Eugenics and Unitarians

Perhaps we should not be surprised that Fisher and Wright are less appreciated in science and religion discussion, given their positions. Fisher's eugenics have led to his diminished status as a scientist committed to faith.[26] Much as with Sir Arthur Eddington as a Quaker, Wright's status as a Unitarian means he does not feature much as an archetypal religious scientist in many works on science and religion. However, their faith played no small part in their lives. There is scope here, therefore, to claim that if not for their less typical backgrounds and ventures, these men would be more highly regarded in science and religion, and the case of serious religious believers in the formation of the MES would be a better reported novelty in the history of science.

24 Moore, "Ronald Aylmer Fisher," 181.

25 Ruse, *Can a Darwinian Be a Christian?* 301.

26 Ruse, *Can a Darwinian Be a Christian?* 182.

The history of science and religion unfortunately hits barriers when concerning evolutionary biology. Much focus is given to the conflicts such as the Scopes Monkey Trial of 1925, or the Oxford Natural History Museum debate between Thomas Huxley and Samuel Wilberforce. Furthermore, Creationism and more recently Intelligent Design have distracted the discussion from a religious standpoint. Theistic evolution as a position has received more recent promotion, and important research has been undertaken on the early religious defenders of Darwin such as Asa Gray and John Stephens Henslow. Given the exceptional importance of the MES, it is interesting that the believing scientists treated here have not received more attention. Perhaps part of the reason is that religious motivations do not seem to have guided their scientific findings, or that their views were expressed philosophically in works that do not carry scientific importance in themselves.

Biases and prejudices, both of their time and in our contemporary world, come into play in diminishing the roles of that generation of religious evolutionary biologists, who belong to an era of historical interest in the initial dissemination and debate over Darwin's new idea. The generation of Dobzhansky, Wright, and Fisher was heavily invested in genetic mutation as a mechanism driving evolution forwards. After genome sequencing arrived with Fred Sanger, and many representatives of the MES generation had died, occasionally, mutation began to be viewed with suspicion as a mechanism of creativity due to its implication in genetic disease. But the thought that God would use a method that can bring death to produce more life should not be alien when dealing with a God of redemption, resurrection, and renewal. Perhaps it is the manner in which these men balanced their faith and science as less dogmatic that left them more open to seeing God work in such ways. But this might have had the unfortunate byproduct of them not featuring as famously as scientists of faith conviction.

The leading cause of the diminished status of their emphasis in science and religion must largely be attributed to the Unitarianism of Wright and the eugenics of Fisher. Obscurity and controversy

are certainly at work. This is not at all surprising when considering the position the University College London felt compelled to take on Fisher,[27] and that Unitarian journals are not replete with information on Wright.

Conclusions

Despite the claims that Darwinism is the end of reasonable religious belief,[28] it is incredibly difficult to sustain this claim in light of the personal convictions of these three individuals who were foundational for the development of the MES. Neither can the enthusiasm for their religious beliefs be dismissed in the cases of Dobzhansky and Fisher, in particular. All three made concerted efforts to synthesise faith with scientific expertise, resulting in an emphasis on mind and creativity. Arguments for their environment or upbringing being the sole cause for their religious convictions also fail when considering the situation in the United States. Dobzhansky was at Columbia University, just three years after the infamous Scopes Trial, when evolutionary biology and religious faith were at the highest levels of public strain. The release of the 1955 play *Inherit the Wind*, showcasing the heat of this conflict, comes a few years after the MES was established. One might not expect that in such a public furore, religious devotees in the field would be open about their belief.

Much as they saw no conflict between science and religion, they also fed no public dispute. None took part in debates, instead exploring their philosophy in academic writing and sharing their thoughts through other mediums such as lectures or popular books and articles.

27 See the UCL statement on his biography at https://tinyurl.com/yspk2t7k, which reads: "The R. A. Fisher Centre for Computational Biology was founded in 2010 within the Department of Genetics, Evolution, and Environment (GEE) at UCL, with Professor Ziheng Yang FRS as its director. Following on from the UCL Eugenics Enquiry in 2019/20, in which the University's associations with Francis Galton and Karl Pearson were reassessed, their names were removed from several buildings and spaces on our campus."

28 A good example would be Daniel Dennett, *Breaking the Spell* (London: Penguin, 2007).

None of them came into conflict with other members of the MES who held opposing views (such as Ernst Mayr or George Gaylord Simpson). It is certainly not easy to integrate a new, burgeoning science with faith without any theological training. Perhaps this is why Dobzhansky was most prominent in integrating faith into his perspectives, as his father was a priest, giving him a steady foundation for doing so.

In each case, but particularly in Dobzhansky's, we see the archetypal theistic evolutionist. Francis Collins made particular note of him[29] as a fine example for the religious evolutionary biologist to follow. From the earliest days of the MES, as well as following the work of Darwin himself, theistic evolution was the readily assumed position of those working in related academic fields.

Furthermore, as seen in Dobzhansky's writing, forums opened further for those in the life sciences to discuss God's creative work in public through an evolutionary lens. Fisher's Eddington Memorial Lecture in 1950 is a small example, but even before the MES we see Joseph Needham and others moving out from biochemistry into public philosophy.[30] Julian Huxley himself would publish a short work entitled *Religion Without Revelation* in 1941, to defend a more biologically grounded form of belief.[31]

Part of what has interested scholarship on the MES is the coming together of diverse branches of the life sciences. These have been synthesised into a coherent pathway that has led to the development of a practical evolutionary biology. From Mayr, the field biologist, to Wright and Fisher as statisticians and mathematicians, with everything in between, the MES was the unification of different branches into the successful integration of Darwin and Mendel's approaches.

29 Francis S. Collins, *The Language of God* (New York: Free Press, 2006), 199.

30 Another example of this is Charles E. Raven and Joseph Needham, *The Creator Spirit: A Survey of Christian Doctrine in the Light of Biology, Psychology and Mysticism*, The Hulsean Lectures, Cambridge, 1926–1927 (Cambridge, MA: Harvard University Press, 1926).

31 Julian Huxley, *Religion Without Revelation* (London: Watts and Co., 1941).

This accomplishment overshadowed the religious convictions of three of the thinkers who have gone largely unnoticed.

Nevertheless, the contributions of the thinkers reviewed above are of great significance to the history of science and Christianity, especially of Christianity and evolutionary biology. Just as with the early religious defenders of Darwin, key players in the birth of the MES had an active Christian faith and saw no conflict whatsoever between their research and their faith. One could call it a synthesis all of its own.

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