

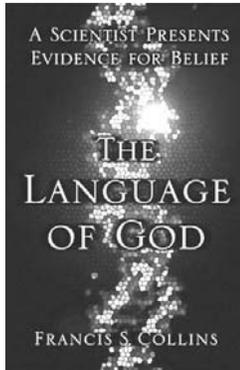


Essay Review

Francis S. Collins: A Spokesman for Today

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J. W. Haas, Jr.



The Language of God: A Scientist Presents Evidence for Belief by Francis S. Collins. New York: Free Press, 2006. 304 pages, notes, index, appendix. Hardcover; \$26.00. ISBN: 0743286391. Audio CD (read by Collins), Unabridged; \$29.95. eBook; \$16.99.

Evangelical Christianity has long needed an infusion of those with highly regarded scientific credentials and a living faith who can speak to the issues of science and Christianity at the national level. With *The Language of God*, his leadership as Director of the National Human Genome Research Institute, as well as an engaging personality, Francis S. Collins ably fills such a role.

In the months before publication, Collins entered the public eye via interviews by the national press and in August 2006, with fellow ASA member and Harvard Astronomer Owen Gingerich, was the subject of a searching interview by National Public Radio's *Talk of the Nation*.¹ Collins emerges from the halls of science and the political stage of the Human Genome Project capable of reaching a broad audience in detailing his path to Christianity and the challenges to one who seeks to bridge the worldviews of science and faith. From the vantage point of an insider, he comments on the values and pitfalls emerging as a result of the rapid progress in understanding the human genome and improving human health.

Asked by a reporter why he was going public, Collins cited his experience with students at the William Belden Noble lectures he had given on three weeknights at Harvard's Memorial Church in 2003.

It was clear to me from that experience that there is a hunger for a dialogue about whether these two ways of seek-

ing the truth [science and religion] are compatible or whether they're at war. Right now, it appears to many that there's a war going on.²

An Educational and Spiritual Odyssey

The Introduction of *The Language of God* describes a capstone moment—the June day in 2000 when Collins stood in the East Room of the White House with President Clinton and government officials—linked by satellite to Prime Minister Tony Blair and other participants in the project—to announce that the script for the human genome was available to all. He recalls his role with the president's speech writer in the inclusion of the words:

Today, we are learning the language in which God created life. We are gaining ever more awe for the complexity, the beauty, and the wonder of God's most divine and sacred gift.³

Collins would build on this comment in his own remarks at this occasion by noting that “the experience of sequencing the human genome ... was both a stunning scientific achievement and an occasion of worship.”⁴

The chapter “From Atheism to Belief” describes his early years. The youngest of four brothers, he was raised on a dirt farm in the Shenandoah Valley and home-schooled by highly educated parents in an environment indifferent to religion. A move to town, public school, and a “charismatic” chemistry teacher turned him on to chemistry—biology was “too messy.” He entered

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Jack Haas, Gordon College emeritus professor of chemistry, whiles away his days working on the ASA web site, practicing the trumpet to maintain his chair in the church brass group, and splitting wood to keep the household comfortable in the New England winter.

Yale at age 16, gained a B.S. in chemistry at 20 and a Ph.D. in physical chemistry at 24. Along the way, if he thought about religion at all, he wavered between agnosticism and atheism—a pattern of “willful blindness” that he would later identify in C. S. Lewis. Half-way through a dissertation on quantum mechanics, he began to have doubts about a future as a teacher and researcher. During the same period, he enrolled in a course in biochemistry which he described:

The course was nothing short of astounding. The principles of DNA, RNA, and protein, never previously apparent to me, were laid out in all of their satisfying digital glory ... With the advent of new methods for splicing different DNA fragments together at will ... the possibility of applying all of this knowledge for human benefit seemed quite real. Biology has mathematical elegance after all. Life makes sense.⁵

Collins then abruptly shifted direction to enroll in medical school at the University of North Carolina. A short course in medical genetics opened his eyes to the possibilities of genetic medicine and started him on the path to lead the Human Genome Project. Becoming involved in bedside care, he began to appreciate the relationships that naturally develop when one becomes closely involved with patients and the strong role that Christian faith played in the lives of those close to death. One patient challenged him to reconsider the God question and he visited a Methodist minister who pointed him to C. S. Lewis’s *Mere Christianity*.

Collins was particularly attracted by Lewis’s Moral Law argument. As he reflected on the implications of a holy and righteous God he came to “the threshold of accepting the possibility of a spiritual worldview, including the existence of God.” Science provided no help. His intellectual search turned personal as he recognized that his ultimate choice would be based on faith rather than proof. He had found a God who cared about humans.

In his chapter “The War of the Worldviews,” Collins spells out four sources of doubt that plagued his new faith. As with other “doubters,” over the years C. S. Lewis’s writings would be a fruitful resource. Was God just a sentimental conclusion to a universal longing—a kind of wish fulfillment? Was he the end of childhood wishes described by Sigmund Freud? Collins would find that this *sacred longing* would lead in a different direction to the God of the Bible who fills a “God-shaped vacuum” in our hearts.⁶ Another question concerned the record of evil done in the name of Christianity. Collins notes Voltaire’s famous comment at the start of the French Revolution, “Is it any wonder that there are atheists in the world, when the church behaves so abominably?”⁷ The hypocrisy of the laity and church leaders alike is endemic. In the end, the way out of this concern is to look at the good that has

resulted from Christians—to look beyond the rust and corruption to the pure.

How can a loving God allow suffering? Collins suggests several helpful responses. Our God-given freedom to make choices may lead to bad outcomes. Free will and the existence of evil will lead to terrible suffering. The order of nature can lead to pain and human anguish. With Collins we recognize that rational answers do not sweep away the effects. In the end we need to entrust pain and suffering to the loving care of God. Adversity, indeed, forces one to a spiritual worldview.

The last of the objections, considered by Collins, deals with the belief in miracles. A scientific worldview has no place for miracles. He turned to Lewis’s book, *Miracles*, where a Christian worldview does embrace the role of miracles in historic Christianity, especially the resurrection of Jesus Christ from the dead. While dubious about many claims of the miraculous in current culture, Collins is willing to assume that God will intervene in everyday situations. Many things appear miraculous to the uneducated. Collins is sympathetic to John Polkinghorne’s point that “to be credible, miracles must convey a deeper understanding than could be obtained without them.”⁸ Faith may be buttressed by strong arguments but nonetheless is faith!

The Great Questions of Human Existence

Collins then turns to the origin of the universe and the origin of life by asking whether there can be a harmony between science and faith in this contentious arena. He begins with a conventional statement of how science works, pointing out its dynamic nature which leads to refinement (and occasionally radical change) in our understanding of the structure of the universe and the nature of matter as a result of new tools and methods of attacking questions. While verbal descriptions of current concepts are increasingly opaque to nonspecialists, Collins physical chemist side finds that “their mathematical representation invariably turns out to be elegant, unexpectedly simple and even beautiful.”⁹ He asks whether mathematics is a language of God.

The Big Bang—*something* out of *nothing*—demands a supernatural Creator. Scripture and science describe the event in the same general fashion. Collins discusses the process leading to the formation of our sun about six billion years ago and the cooling of our earth to be potentially livable for life about four billion years ago. Remarkably, planet Earth was teeming with life 150 million years later. Collins feels that this story is well founded. While open to the finding of life on other planets, he is dubious about our near-term ability to answer the question.



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Collins finds the anthropic principle to be *interesting* but not *decisive* as a proof for the existence of God. In another well-honed section, he considers quantum mechanics and the uncertainty principle but finds little for the theist. Complementarity, a favorite approach for apologists of the last generation, is not mentioned.

Collins then returns to his earlier point that science is incomplete—that there is need for a creator God who answers both the question of what came before the Big Bang and the fine-tuned universe suggested by the anthropic principle. He draws together these threads with his earlier “God hypothesis” in a tentative synthesis of science and faith. He treads carefully on matters of scriptural interpretation, recognizing the wide range of views and the tenacity with which they are held.

Chapters four and five consider earthly life and the human genome—the author’s strengths. He begins by noting the loss of traditional “pillars of belief” through scientific accounts of the earth’s origin and evidence that the earth was not the center of the universe. A third pillar—the complexity of life—has more recently come under scientific scrutiny. Collins suggests that the simple observations of an earlier time have been enhanced by our new understanding of the elegance behind the surface complexity. He offers a detailed analysis of Paley’s well-known watchmaker design analogy by identifying its limitations as an argument for God. He is concerned with those who fear the scientist’s search for understanding and reminds the reader that science cannot answer the basic questions of existence.

Collins surveys efforts to develop mechanisms for the origin of life from the periodic environment of the early earth. The few scenarios that have been offered have little substance and there is nothing in the wings that promises anything more fruitful. Collins warns against any tendency on the part of Christians to invoke divine intervention at points where science appears clueless. The past is full of mysteries linked with theology that left their advocates with egg on their faces when uncovered.

Recent fossils discoveries have provided evidence for extinct species and the time scale for a host of organisms as methods of

dating have been refined and funding more available. New findings related to modern *Homo sapiens* and other hominids appear almost daily and one should be wary about hanging theology on any part of such a fast-moving field. The discovery of transitional forms from reptiles to birds and reptiles to mammals should dispel some of the cries for this information.

A short introduction to Charles Darwin’s work and influence includes comment on his religious views and his contributions to the current understanding of the complexity and diversity of life. An account of the post-Darwinian work on the physical basis of evolution brings a fascinating story to the present. High school biology has become less messy but more complex! When Collins is faced with those who charge that science displaces divine mystery, he responds:

For me there is not a shred of disappointment or disillusion in these discoveries about the nature of life—quite the contrary! How marvelous and intricate life turns out to be! How deeply satisfying is the digital elegance of DNA! How aesthetically appealing and artistically sublime are the components of living things, from the ribosome that translates RNA into protein, to the metamorphosis of the caterpillar into the butterfly, to the fabulous plumage of the peacock attracting his mate!¹⁰

In the chapter, “Deciphering God’s Instruction Book,” Collins describes what an arduous task it was in the early 1980s to determine even small amounts of the human DNA code. It took eighteen months to find the single altered letter of the human DNA code that triggers the fetal hemoglobin production. Once that was identified then one could learn how to turn this on in adults with sickle cell disease. Shortly after Collins learned of an ongoing discussion concerning the DNA sequence of the entire human genome—something he did not expect in his lifetime. He joined the debate on the side of those who wanted to go forward, and consequently developed a research group of graduate students and post-docs for the purpose of identifying the genetic basis of certain diseases that had hitherto resisted discovery. Cystic fibrosis, a common potentially fatal genetic disorder of northern

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Europeans, became the object of his group's attention. The story that follows should be read by any young person interested in science.

At that time, finding genes was a matter of identifying chromosomal markers that were inherited with the disease, and then "walking" from one piece of DNA to the next in the hope of stumbling on the gene of interest. The process was painfully slow. Collins developed a more rapid method that made it possible to "jump" along larger stretches of DNA; later, he coined the term "positional cloning" to describe this process of finding a disease gene by its map position. In contrast to previous methods for finding genes, positional cloning enabled scientists to identify disease genes without knowing in advance what the functional abnormality underlying the disease might be.

[O]ne rainy night in May 1989, the answer finally came. There spilling out of the fax machine Lap-Chee and I had set up in the Yale dormitory where we were both attending a meeting, was the data from that days work in the lab—showing unequivocally that a deletion of just three letters from the DNA code in the protein-coding part of a previously unknown gene was the cause of cystic fibrosis in the majority of patients.¹¹



"The Language of Speed"

While the final chapter of the cystic fibrosis story is yet to be written, this "easiest" challenge had taken more than ten years, two dozen research groups worldwide, and more than \$50 million to identify one gene for one disease. Extending the research to other rarer diseases and to those where multiple genes are involved seemed to require knowledge of the entire human genome.

Collins describes the intense debate of the late 1980s: the start of the U.S. Human Genome Project led by James Watson, Watson's sudden departure after two years over an argument with the director of the NIH over patenting parts of the DNA and Francis Collins' appointment as Director in late 1992. For Collins this appointment was a spiritual as well as career challenge. As the years wore on to the April 2003 announcement of the completion of the goals of the Human Genome Project, Collins led a very public project that demanded good judgment, political savvy with Congress, cooperating research teams and competing challenger Craig Venter as well as scientific acumen and Christian ethics.

Space does not permit consideration of Collins' thinking on DNA and evolution, his reading of Genesis, atheism and agnosticism, creationism, intelligent design, or his own view, *BioLogos: Science and Faith in Harmony*. They are best considered by reading the book. The closing chapter "Truth Seekers" spells out a faith grounded in obedience to the call of Jesus Christ who died in his place.

Collins writes clearly about complex things. His book is a wide-ranging account laced with humor, humility, a love for science, and a desire to witness to God—an inspiring account for the faithful and a challenge to the casual reader to follow his path to belief. *

Notes

¹Francis Collins and Owen Gingerich, "Must We Have a Separation of Church and Science?" *Talk of the Nation*, National Public Radio, WGBH, Boston, August 4, 2006. <www.npr.org/templates/story/story.php?storyId=5617850>. Edited transcript of Collins remarks: <www.pbs.org/wgbh/questionofgod/voices/collins.html>

²Francis S. Collins, "Is There Common Ground Between Science and God?" interview by Gina Shaw, Washington DC: The Association of American Medical Colleges, August 11, 2006. www.aamc.org/newsroom/reporter/aug06/quanda.htm

³*Language of God*, 2.

⁴*Ibid.*, 3.

⁵*Ibid.*, 17.

⁶*Ibid.*, 38.

⁷*Ibid.*, 40-1.

⁸Quoted in *The Language of God*, 53.

⁹*Ibid.*, 61

¹⁰*Ibid.*, 106-7.

¹¹*Ibid.*, 115.