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FOUR VIEWS ON

CREATION, EVOLUTION, AND INTELLIGENT DESIGN

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COUNTERPOINTS
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INTRODUCTION

J. B. STUMP

Sample List of Relevant Books

Ross, Hugh. *The Creator and the Cosmos: How the Latest Scientific Discoveries of the Century Reveal God*. Carol Stream, IL: NavPress, 2001.

Rana, Fazale and Hugh Ross. *Who Was Adam? A Creation Model Approach to the Origin of Man*. Carol Stream, IL: NavPress 2005; updated Covina, CA: RTB Press, 2015.

Ham, Ken. *The New Answers Book*. Vol. 1. Green Forest, AZ: Master Books, 2006.

Dembski, William A. *The Design Inference: Eliminating Chance through Small Probabilities*. Cambridge: Cambridge University Press, 2006.

Collins, Francis. *The Language of God: A Scientist Presents Evidence for Belief*. New York: Free Press, 2006.

Mortenson, Terry and Thane H. Ury, eds. *Coming to Grips with Genesis: Biblical Authority and the Age of the Earth*. Green Forest, AZ: Master Books, 2008.

Meyer, Stephen C. *Signature in the Cell: DNA and the Evidence for Intelligent Design*. San Francisco: HarperOne, 2009.

Walton, John. *The Lost World of Genesis One: Ancient Cosmology and the Origins Debate*. Downers Grove, IL: IVP Academic, 2009.

Snelling, Andrew. *Earth's Catastrophic Past: Geology, Creation, & the Flood*. Dallas, TX: Institute for Creation Research, 2009.

Haarsma, Deborah B. and Loren. *Origins: Christian Perspectives on Creation, Evolution, and Intelligent Design*. Grand Rapids: Faith Alive Christian Resources, 2011.

Meyer, Stephen C. *Darwin's Doubt: The Explosive Origin of Animal Life and the Case for Intelligent Design*. San Francisco: HarperOne, 2013.

Ross, Hugh and Kathy. *Navigating Genesis: A Scientist's Journey Through Genesis 1–11*. Covina, CA: RTB Press, 2014.

Footnotes

1. See for example the Pew surveys of scientists' beliefs here: http://www.pewinternet.org/2015/07/23/an-elaboration-of-aaas-scientists-views/.

CHAPTER ONE

YOUNG-EARTH CREATIONISM

KEN HAM

Footnotes

1. Robert P. Jones et al., *Exodus: Why Americans are Leaving Religion and Why They're Unlikely to Come Back* (Washington, DC: Public Religion Research Institute, 2016), 2.

2. Ken Ham and Britt Beemer, *Already Gone: Why Your Kids Will Quit Church and What You Can Do About It* (Green Forest, AR: Master Books, 2009).

3. See a list of some of those modern and historical creation scientists with a PhD in science at https://answersingenesis.org/creation-scientists/.

4. See Ham and Beemer, *Already Gone*.

5. This is clearly seen in many atheist responses to intelligent-design arguments that are divorced from Scripture and advocated by those who accept the millions of years of death. The atheists give examples of natural evil, such as mosquitos carrying malaria or hurricanes ravaging the land and ask, "How intelligent is that? What kind of a God would make a world like that?"

6. See Steven Boyd, "The Genre of Genesis 1:1–2:3: What Means This Text?" in *Coming to Grips with Genesis*, eds. Terry Mortenson and Thane H. Ury, (Green Forest, AR: Master Books, 2008), 163–92. "A layman's summary of Boyd's research" is in Donald DeYoung, *Thousands, Not Billions: Challenging an Icon of Evolution* (Green Forest, AR: Master Books, 2005), 157–72.

7. Mortenson and Ury, eds., *Coming to Grips with Genesis*, 315–72.

8. We must not make the mistake of thinking that an account is not accurate history if there were no human eyewitnesses (e.g., the account of the first five days of creation week), for then we would have to draw the unbiblical and historically inaccurate conclusion that Jesus was not conceived by the Holy Spirit working in Mary or that Jesus was not raised from the dead (no human saw either event). God can and did move men to write accurate history about many events that neither they nor any other human ever personally saw.

9. See, for example, the arguments in Walter Kaiser, *The Old Testament Documents: Are They Reliable and Relevant?* (Downers Grove, IL: IVP, 2001), 53–83.

10. Only two verses are ever cited by old-earth proponents as an objection to this claim: Zechariah 14:7 and Hosea 6:2. But in the first case, the context of verses 14:1, 4, and 6 shows that they are referring to the same unique day (in Hebrew *yom ehad*, just as at the end of Gen 1:5), the day the Lord returns at the end of the age. The Messiah Jesus is not going to return over long ages, but suddenly, in an instant ("in the twinkling of an eye:" 1 Cor 15:52 and 1 Thess 4:13ff). In Hosea, the prophet calls the people to repentance and gives a promise

of spiritual healing and reviving "after two days" and "on the third day." But it is no comfort if it doesn't mean that God will quickly respond mercifully to their returning to the Lord. What would it mean if the promise was that God would revive them two to three hundred (or thousand or million) years after they repent? The promise only makes sense when we take the days literally and take the phrases as meaning "quickly." Neither of these verses shows that *yom* modified by a number can mean something other than a literal day.

11. See also Gerhard F. Hasel, "The 'Days' of Creation in Genesis 1: Literal 'Days' or Figurative 'Periods/Epochs' of Time?" *Origins* 21:1 (1994): 5–38; Andrew E. Steinmann, "אֶחָד As an Ordinal Number and the Meaning of Genesis 1:5," *Journal of the Evangelical Theological Society* 45:4 (2002): 577–84; Robert McCabe, "A Defense of Literal Days in the Creation Week," *Detroit Baptist Seminary Journal* 5 (2000): 97–123.

12. Scripture repeatedly affirms in various ways that it is God-breathed ("inspired," 2 Tim 3:16) and therefore refers to itself as the "Word of God." God is the ultimate author. He moved men to write exactly what He wanted written (2 Pet 1:20–21) while using each one's unique life experience, training, and personality. So what the human author said is what God said.

13. He used *zeman* in Nehemiah 2:6 and Daniel 2:16, 21; 4:33 (Heb 4:36); and 7:25, and *'iddan* in Daniel 4:16, 23, 25, and 32 (Heb 4:13, 20, 22, and 29).

14. See further contradictions in order in https://answersingenesis.org/why-does-creation-matter/evolution-vs-creation-the-order-of-events-matters/.

15. When God said, "Let the earth sprout vegetation" (Gen 1:11 ESV, NASB), it was a supernatural growth to maturity, just as occurred when God made a plant to grow large enough in a few hours or less to provide shade for Jonah (Jonah 4:6).

16. Evolutionists don't agree on exactly what is a human being. So dates for the first human range from two hundred thousand to four hundred years ago or more. See, for example, https://en.wikipedia.org/wiki/Timeline_of_human_evolution and https://en.wikipedia.org/wiki/Neanderthal. For arguments in favor of the conclusion that the Genesis 5 and 11 genealogies are gapless chronologies, see chapter 5, "When Was Adam Created?" in *Searching for Adam: Genesis and the Truth about Man's Origin*, ed. Terry Mortenson (Green Forest, AR: Master Books, 2016); also at https://answersingenesis.org/bible-characters/adam-and-eve/when-was-adam-created/.

17.For an in-depth discussion of the issue of no death before the fall, see https://answersingenesis.org/theory-of-evolution/millions-of-years/the-fall-and-the-problem-of-millions-of-years-of-natural-evil/.

18. See Henry B. Smith, Jr., "Cosmic and Universal Death from Adam's Fall: An Exegesis of Romans 8:19–23a," *Journal of Creation* 21:1 (2007): 75–85; http://creation.com/cosmic-and-universal-death-from-adams-fall-an-exegesis-of-romans-819–23a. For a briefer discussion, see Douglas Moo, *The Epistle to the Romans* (Grand Rapids: Eerdmans, 1996), 513–14; Thomas Schreiner, *Romans* (Grand Rapids: Baker, 1998), 435; and John Murray, *The Epistle to the Romans* (Grand Rapids: Eerdmans, 1993), 301–02.

19. Ronald Numbers, quoted in Gwen Evans, "Reason or Faith? Darwin Expert Reflects," http://www.news.wisc.edu/16176, 3 Feb. 2009.

20. I am not saying that the age of the earth was the focus of these verses. Rather, they reflect the young-earth creationist worldview of Jesus. For a thorough discussion of Jesus' words and old-earth attempts to reinterpret them, including evidence that the phrase "creation of the world" refers to the whole creation week and not just the first act of creation in Genesis 1:1, see Terry Mortenson, "Jesus, Evangelical Scholars and the Age of the Earth," in *Coming to Grips with Genesis*, 315–46. For a short, layman's discussion, see Terry Mortenson, "But from the Beginning of . . . the Institution of Marriage?"; www.answersingenesis.org/docs2004/1101ankerberg_response.asp, a response to a web article by John Ankerberg and Norman Geisler on Mark 10:6.

21. So read the NASB, ESV, NKJV, NIV, NLT, and NRSV. The KJV, KJ21, and HCSB render *apo ktiseos kosmou* as "from the creation of the world." But *apo* ("from") here surely means "since." For reasons behind this conclusion, see Ron Minton, "Apostolic Witness to Genesis Creation and the Flood," in *Coming to Grips with Genesis*, 351–54.

22. Of course Adam, Noah, and Shem were human eyewitnesses to many of the events of Genesis 1–11 during their lifetimes. The reference to the "book of the generations of Adam" (Gen 5:1) and the clearly implied intelligence of Cain (in building a city) and others in Genesis 4 (in developing mining, metallurgy and musical instruments) and Noah and family (in building the ark), strongly suggests that man had the ability to write from the very beginning. The eleven *toledot* ("these are the generations of") distributed through Genesis may indicate, among other things, that in inspiring Genesis God guided Moses in the use of preexisting documents or oral tradition passed on by the patriarchs.

23. Creationists do not insist or advocate this at all, and neither did the laws in these two states, so this is a distortion. What we insist is that students should be allowed to hear scientific criticisms of evolution in the public schools. See the discussion in my article in the next footnote.

24. George Dvorsky, "How 19-year-old Activist Zack Kopplin Is Making Life Hell for Louisiana's Creationists," http://io9.com/5976112/how-19+year+old-activist-zack-kopplin-is-making-life-hell-for-louisianas-creationists, Jan 2013. For a careful analysis of Kopplin's views, see Ken Ham and Steve Golden, "The Legacy of Brainwashing," http://www.answersingenesis.org/articles/2013/01/21/legacy-of-brainwashing.

25. "Larry King Now," April 1, 2013, http://www.hulu.com/watch/473418.

26. Ernst Mayr, *What Evolution is* (New York: Basic Books, 2001), 13.

27. Not all scientists believe this. Many do believe in God (however defined), but most do their scientific work as if the naturalistic worldview is true.

28. See Terry Mortenson, *The Great Turning Point: The Church's Catastrophic Mistake on Geology—Before Darwin* (Green Forest, AR: Master Books, 2004).

29. See for example, Jack Repcheck, *The Man Who Found Time: James Hutton and the Discovery of the Earth's Antiquity* (Cambridge: Perseus Publishing, 2003).

30. Quoted in A. Holmes, *Principles of Physical Geology*, 2nd ed. (Edinburgh, Scotland: Nelson, 1965), 43–44.

31. God's supernatural activity in the flood account is clearly seen at least in God bring the animals to Noah in the Ark (Gen 7:8–9), the initiation of the unleashing of the waters on the same day (Gen 7:11), and the beginning of the receding of the floodwaters by stopping those same sources of waters (Gen 8:2).

32. James Hutton, *Theory of the Earth* (Edinburgh, Scotland: William Creech, 1795), 1:273.

33. Charles Lyell, Lecture II at King's College London on May 4, 1832, quoted in Martin J. S. Rudwick, "Charles Lyell Speaks in the Lecture Theatre," *The British Journal for the History of Science*, vol. IX, pt. 2, no. 32 (July 1976): 150.

34. Charles Lyell, quoted in Katherine Lyell, *Life, Letters and Journals of Sir Charles Lyell, Bart* (London: John Murray, 1881), 1:268.

35. Martin, J. S. Rudwick, "The Shape and Meaning of Earth History," in *God and Nature*, eds. David C. Lindberg and Ronald L. Numbers (Berkley, CA: University of California Press, 1986), 306, 311.

36. Stephen Jay Gould, "Catastrophes and Steady-State Earth," *Natural History* (Feb. 1975): 15–17.

37. Mortenson, *The Great Turning Point*.

38. Stephen Jay Gould and Niles Eldredge, "Punctuated Equilibria: The Tempo and Mode of Evolution Reconsidered," *Paleobiology* 3 (1977): 145.

39. Charles Darwin, *The Origin of Species*, repr. of 1859 1st ed. (London: Penguin Books, 1985), 293.

40. Charles Darwin, *The Correspondence of Charles Darwin, Vol. 3* (Cambridge: Cambridge University Press, 1987), 55.

41. For more on these historical developments see Mortenson, *The Great Turning Point*, and his article, https://answersingenesis.org/age-of-the-earth/are-philosophical-naturalism-and-age-of-the-earth-related/.

42. Davis A. Young, "The Discovery of Terrestrial History," in *Portraits of Creation*, Howard J. Van Till, Robert E. Snow, John H. Stek, and Davis A. Young (Grand Rapids: Eerdmans, 1990), 80–81.

43. Derek Ager, *The New Catastrophism* (Cambridge: Cambridge University Press, 1993), xi.

44. Ibid., 190–91.

45. Kevin Anderson, *Echoes of the Jurassic* (Chino Valley, AZ: CRS Books, 2016).

46. This and other evidences are explained and illustrated by Andrew Snelling in the DVDs available from Answers in Genesis: https://answersingenesis.org/store/product/geology-set/?sku=90–7–791. For more depth, see Snelling's two-volume, 1128-page *Earth's Catastrophic Past*. Dr. Snelling has a PhD in geology from the University of Sydney in Australia, and has done geological research in the Grand Canyon and on four continents. He is Director of Research at Answers in Genesis.

47. See the four-part online free video lecture by Andrew Snelling: https://answersingenesis.org/media/video/age-of-the-earth/radiocarbon-dating/. Also, see Andrew Snelling, "Radiometric Dating: Problems with the Assumptions," https://answersingenesis.org/geology/radiometric-dating/radiometric-dating-problems-with-the-assumptions/; Snelling, "Radioisotope Dating of Rocks in the Grand Canyon," https://answersingenesis.org/geology/radiometric-dating/radioisotope-dating-of-rocks-in-the-grand-canyon/; and Snelling, "Significance of Highly Discordant Radioisotope Dates for Precambrian Amphibolites in Grand Canyon, USA," https://answersingenesis.org/geology/grand-canyon-facts/radioisotope-dates-for-precambrian-amphibolites-in-grand-canyon/, originally published in the 2008 *Proceedings of the Sixth International Conference on Creationism*, 407–24, and the resources in the previous footnote.

48. For more on this point see Georgia Purdom, "Evidence of New Genetic Information?" https://answersingenesis.org/genetics/mutations/evidence-of-new-genetic-information/; "Nylon-eating Bacteria Again," https://answersingenesis.org/blogs/georgia-purdom/2012/03/01/nylon-eating-bacteria-again/; and "Bacteria Evolve 'Key Innovation' or Not?" https://answersingenesis.org/blogs/georgia-purdom/2012/11/08/bacteria-evolve-key-innovation-or-not/.

49. Some readers may object that light travel-time doesn't have anything to do with evolution. But as an examination of even just the covers and contents of many secular astronomy and geology textbooks will show, astrophysicists speak of "stellar evolution," "galactic evolution," and geologists speak of the "evolution of the earth." Like biological evolution, these other stories about the past are based on the assumption that everything can be explained by time, chance, and the laws of nature working on matter. The big bang theory is an evolutionary story about the origin of the universe.

50. Jason Lisle, "Does Distant Starlight Prove the Universe Is Old?" in *The New Answers Book 1*, ed. Ken Ham (Green Forest, AR: Master Books, 2006), 245–54.

51. This series of technical papers demonstrates from the conventional literature that the decay rates of all these radioactive isotopes used conventionally to date rocks as millions and billions of years old have actually been all calibrated (or adjusted) so the ages derived from them agree with the ^{238}U decay (U-Pb) ages. See "Determination of the Radioisotope Decay Constants and Half-Lives: Rubidium-87 (^{87}Rb)," *Answers Research Journal* 7 (2014): 311–22, https://answersingenesis.org/geology/radiometric-dating/determination-radioisotope-decay-constants-and-half-lives-rubidium-87–87rb/; "Determination of the Radioisotope Decay Constants and Half-Lives: Lutetium-176 (^{176}Lu)," *ARJ* 7 (2014): 483–97, https://answersingenesis.org/geology/radiometric-dating/determination-radioisotope-decay-constants-and-half-lives-lutetium-176/; "Determination of the Radioisotope Decay Constants and Half-Lives: Rhenium-187 (^{187}Re)," *ARJ* 8 (2015): 93–111, https://answersingenesis.org/geology/radiometric-dating/determination-radioisotope-decay-constants-and-half-lives-rhenium-187/; "Determination of the Radioisotope Decay Constants and Half-Lives: Samarium-147 (^{147}Sm)," *ARJ* 8 (2015): 305–21, https://answersingenesis.org/geology/radiometric-dating/determination-radioisotope-decay-constants-and-half-lives-samarium-147/; "Determination of the Radioisotope Decay Constants and Half-lives: Potassium-40 (^{40}K)," *ARJ* 9 (2016): 171–96, https://answersingenesis.org/geology/radiometric-dating/determinatio n-radioisotope-decay-constants-half-lives-potassium-40/; "Determination of the Radioisotope Decay Constants and Half-lives: Uranium-238 (^{238}U) and Uranium-235 (^{235}U)," *ARJ* (in preparation).

52. Thomas H. Huxley, *Science and Hebrew Tradition* (New York: D. Appleton, 1893), 207–08. See http://infidels.org/library/modern/mathew/sn-huxley.html for Huxley's explanation of his view and the invention of the word "agnostic."

53. Someone might object that Christian orthodoxy is reflected in the ecumenical creeds (e.g., Apostles' Creed, Nicene Creed, and Athanasian Creed) and none of them say anything about the how and when of creation or the extent, nature, and duration of Noah's flood. So, it is contended, this is not part of Christian orthodoxy. But this is a mistaken view for these creeds, which, though an important witness to some truths of orthodox Christianity, were written to address specific issues at those times and they do not summarize all the truths that orthodox Christians believed and that are important. For example, none of them mention the miracles that Jesus did, nor do they refer to the church's universal belief that the Bible is the inspired Word of God. Similarly, they do not mention belief in a young earth and global flood, for the simple fact that this was not a point of disagreement among Bible-believing Christians until the nineteenth century. See Mortenson, *The Great Turning Point*, 40–44. See also the comment of the old-earth geologist Davis Young, "It cannot be denied, in spite of frequent interpretations of Genesis 1 that departed from the rigidly literal, that the almost universal view of the Christian world until the eighteenth century was that the earth was only a few thousand years old." Davis A. Young, *Christianity and the Age of the Earth* (Thousand Oaks, CA: Artisan Sales, 1988), 25, with similar statements on pp. 13, 20, 22, and 39.

54. For a partial list of modern and historical creation scientists see https://answersingenesis.org/creation-scientists/.

55. Quoted in Ronald Numbers, *The Creationists* (New York: Alfred A. Knopf, 1992), 3.

56. https://answersingenesis.org/who-is-god/god-is-good/the-god-of-an-old-earth/.

RESPONSE FROM OLD EARTH (PROGRESSIVE) CREATIONISM

HUGH ROSS

Footnotes

1. C. John Collins, *Genesis 1–4: A Linguistic, Literary, and Theological Commentary* (Phillipsburg, NJ: P&R, 2006), 51.

2. Walter C. Kaiser Jr., *Hard Sayings of the Bible* (Downers Grove, IL: InterVarsity Press, 1996), 48–50, 102–104.

3. Isaac Newton, "Newton to Burnet," letter 247 in *The Correspondence of Isaac Newton*, ed. H. W. Turnbull, vol. 2, 1676–1687 (Cambridge: Cambridge University Press, 1960), 333; Hugh Ross, *A Matter of Days: Resolving a Creation Controversy*, 2nd ed. (Covina, CA: RTB Press, 2015), 51.

4. Larry Vardiman, Andrew A. Snelling, and Eugene F. Chaffin, eds., *Radioisotopes and the Age of the Earth* (El Cajon, CA: Institute for Creation Research, 2000), 42–44, 306–07, 312–13, 316–18, 334–37, 374, http://www.icr.org/i/pdf/research/rate-all.pdf.

5. For documentation of the following evidences and many more see my book, *A Matter of Days: Resolving a Creation Controversy,* 2nd ed. (Covina, CA: RTB Press, 2015).

6. A. T. Crites et al., "Measurements of E-Mode Polarization and Temperature-E-Mode Correlation in the Cosmic Microwave Background from 100 Square Degrees of SPTpol Data," *Astrophysical Journal* 805 (May 2015): id. 36, doi:10.1088/0004–637X/805/1/36.

RESPONSE FROM EVOLUTIONARY CREATION

DEBORAH B. HAARSMA

Footnotes

1. Ninety-nine percent of biologists accept that humans evolved. Pew Research Center, "An Elaboration of AAAS Scientists' Views," July 23, 2015, http://www.pewinternet.org/2015/07/23/an-elaboration-of-aaas-scientists-views/.

2. See Davis Young and Ralph Stearley, *The Bible, Rocks, and Time* (Downer's Grove, IL: InterVarsity Press 2008).

3. Including two whom I have joined for on-stage dialogues and panel discussions: biologist Todd Wood of the Core Academy of Science and biblical scholar Roy Gane of Andrews University.

4. See S. Joshua Swamidass "Cancer and Evolution," BioLogos blog post, January 11, 2017, http://biologos.org/blogs/guest/cancer-and-evolution.

5. Some evolutionary creationists also claim the term "inerrant" for Scripture, viewing the Bible as inerrant in what it intends to teach. An example would be B. B. Warfield, the conservative Presbyterian who originated the modern concept of inerrancy and also accepted the evidence for evolution. Other evolutionary creationists do not use the term inerrant, finding it unhelpful or divisive, but uphold the inspiration and authority of Scripture.

6. E.g., Johnny V. Miller and John M. Soden of Lancaster Bible College in *In the Beginning We Misunderstood: Genesis 1 in Its Original Context* (Grand Rapids: Kregel, 2012).

7. For more responses to YEC arguments, see Stephen Mosier et al., "Flood Geology and the Grand Canyon: What Does the Evidence Really Say?" BioLogos blog post, June 29, 2016, http://biologos.org/blogs/archive/flood-geology-and-the-grand-canyon-what-does-the-evidence-really-say; Carol Hill, Gregg Davidson, Tim Helbel, and Wayne Ranney, eds., *The Grand Canyon: Monument to an Ancient Earth* (Grand Rapids: Kregel, 2016); and Davis A. Young and Ralph F. Stearley, *The Bible, Rocks, and Time* (Downer's Grove, IL: InterVarsity Press, 2008).

RESPONSE FROM INTELLIGENT DESIGN

STEPHEN C. MEYER

Footnotes

1. I am grateful to my daughter Bethan K. Meyer for first pointing this out to me.

2. C. John Collins, *Science and Faith, Friend or Foes* (Wheaton, IL: Crossway, 2003), 77–96, 105–10.

3. See for example the statement on the BioLogos website: "At BioLogos, we present the Evolutionary Creationism (EC) viewpoint on origins. Like all Christians, we fully affirm that *God is the creator of all life*—including human beings in his image. We fully affirm that the Bible is the inspired and authoritative word of God. *We also accept the science of evolution as the best description for how God brought about the diversity of life on earth*." (emphasis added); http://biologos.org/common-questions/christianity-and-science/biologos-id-creationism. See also Denis Alexander, *Creation or Evolution: Do We Have To Choose?* 2nd ed. (Oxford and Grand Rapids: Monarch, 2014), 282–304. In this passage Alexander offers several revisionist interpretations or "models" of the Genesis text that all presuppose the truth of contemporary evolutionary theory.

4. William A. Dembski, *The Design Inference* (Cambridge: Cambridge University Press: 1998). Stephen C. Meyer, *Signature in the Cell: DNA and the Evidence for Intelligent Design*, (San Francisco: HarperOne: 2009) 324–72.

REJOINDER

KEN HAM

Footnotes

1. For example, old-earth arguments from ice cores, tree rings, and lake sediments are based on false assumptions, circular reasoning, and misreading of the technical literature that old-earthers cite. See http://www.icr.org/article/icr-aig-refute-biologos-old-earth-argument/; https://answersingenesis.org/age-of-the-earth/do-varves-tree-rings-radiocarbon-measurements-prove-old-earth/; and http://www.icr.org/article/ice-cores-seafloor-sediments-age-earth.

2. The vague mantra that "all truth is God's truth" is also deceptive because not all truth claims are true and the history of science is littered with abandoned claims once called "established truth."

3. See chapters 1–3 and 11–12 in Terry Mortenson and Thane H. Ury, eds., *Coming to Grips with Genesis* (Green Forest, AR: Master Books, 2008).

4. Inerrancy is the orthodox belief of the church through the centuries. See chapters 12–13 in Norman L. Geisler, *Inerrancy* (Grand Rapids: Zondervan, 1980).

5. https://answersingenesis.org/genesis/did-god-create-bara-or-make-asah-in-genesis-1/.

6. Ross is right that it doesn't say "in" six days in Hebrew. But take it out of the English and the verse still says God created everything during a period of six literal (twenty-four hour) days.

7. See https://answersingenesis.org/theory-of-evolution/millions-of-years/the-fall-and-the-problem-of-millions-of-years-of-natural-evil/.

8. Jeremy Sexton, "Who Was Born When Enosh Was 90? A Semantic Reevaluation of William Henry Green's Chronological Gaps," *Westminster Theological Journal* 77 (2015): 193–218; http://pastorsexton.com/articles/. See also https://answersingenesis.org/bible-characters/adam-and-eve/when-was-adam-created/.

CHAPTER TWO

OLD EARTH (PROGRESSIVE) CREATIONISM

HUGH ROSS

Figure 1: Sun's Luminosity History

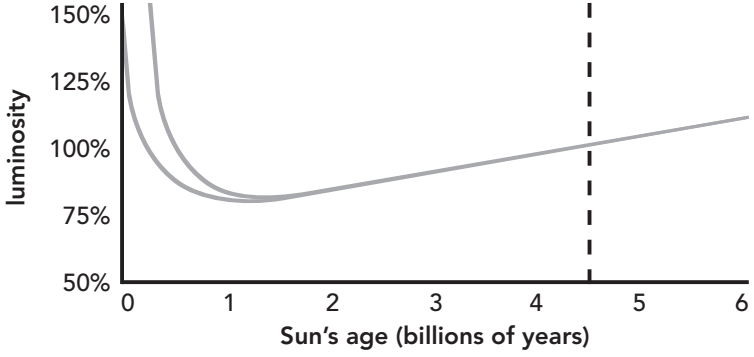
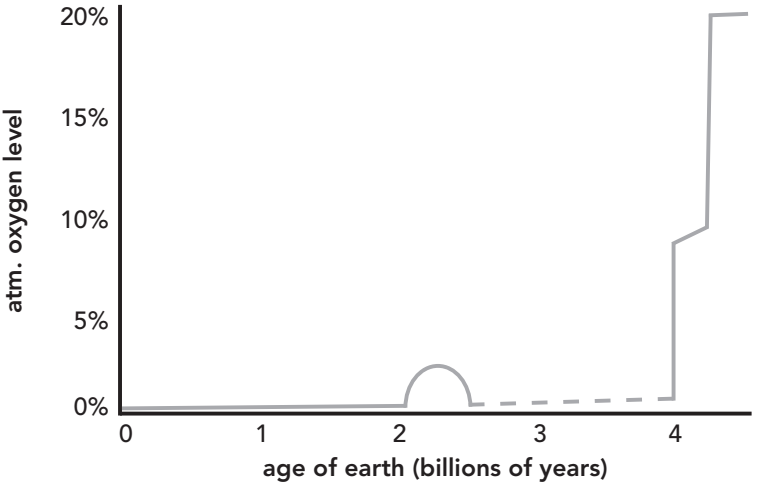


Figure 2: Oxygenation History of Earth's Atmosphere



The dotted line is when the oxygen level was roughly a constant 1 percent or it jumped up and down by 0–2 percent.

Footnotes

1. Hugh Ross, *Improbable Planet: How Earth Became Humanity's Home* (Grand Rapids: Baker, 2016).

2. Michael R. Wilczynska et al., "A New Analysis of Fine-Structure Constant Measurements and Modelling Errors from Quasar Absorption Lines," *Monthly Notices of the Royal Astronomical Society* 454 (Dec 2015): 3082–93, doi:10.1093/mnras/stv2148.

3. For more on how Adam's fall impacted his physical environment, see my book, *A Matter of Days: Resolving a Creation Controversy*, 2nd ed. (Covina, CA: RTB Press, 2015), 89–104.

4. Thomas F. Torrance, *Theology in Reconstruction* (Grand Rapids: Eerdmans, 1965); idem, *Reality and Scientific Theology* (Edinburgh: Scottish Academic Press, 1985); idem, "Ultimate and Penultimate Beliefs in Science," in *Facets of Faith and Science, Volume I: Historiography and Modes of Interaction*, ed. Jitse M. van der Meer (New York: University Press of America, 1996), 151–76.

5. For a listing, see my article, "Creation Passages in the Bible," Reasons to Believe, January 1, 2004, http://www.reasons.org/articles/creation-passages-in-the-bible.

6. These statements are posted on Reasons to Believe's website, "International Council on Biblical Inerrancy (ICBI)/The Chicago Statement on Biblical Hermeneutics (Articles 19–21)," Reasons to Believe, January 1, 1997, http://www.reasons.org/articles/international-council-on-biblical-inerrancy-icbi-the-chicago-statement-on-biblical-hermeneutics-articles-19–22.

7. For a fuller description of my concordist theology, see my article, "Defending Concordism: Response to the Lost World of Genesis One," *Today's New Reason to Believe*, Reasons to Believe, June 22, 2012, http://www.reasons.org/articles/defending-concordism-response-to-the-lost-world-of-genesis-one.

8. Hugh Ross, *Big Bang—The Bible Taught It First!* July 1, 2000, http://www.reasons.org/articles/big-bang–the-bible-taught-it-first.

9. Fred Hoyle, *The Nature of the Universe* (Oxford: Basil Blackwell, 1952), 109.

10. Francis Brown, S. R. Driver, and Charles A. Briggs, *A Hebrew and English Lexicon of the Old Testament* (Oxford: Clarendon, 1962), 787–88; R. Laird Harris, Gleason L. Archer Jr., and Bruce K. Waltke, eds. *Theological Wordbook of the Old Testament*, 2 vols. (Chicago: Moody, 1980), 2:694; H. W. F. Gesenius, *Gesenius' Hebrew-Chaldee Lexicon to the Old Testament*, trans. Samuel Prideaux Tregelles (Grand Rapids: Baker, 1979), 652.

11. Brown, Driver, and Briggs, *Hebrew and English Lexicon*, 133–34; Harris, Archer, and Waltke, *Theological Wordbook of the Old Testament*, 1:125; Gesenius, *Hebrew-Chaldee Lexicon*, 137.

12. Friedrich Delitzsch, *Babel and Bible*, trans. Thomas J. McCormack and W. H. Garuth (Chicago: Open Court, 1903), 45.

13. I describe and document this accord in *Navigating Genesis: A Scientist's Journey Through Genesis 1–11* (Covina, CA: RTB Press, 2014).

14. L. Paul Knauth and Martin J. Kennedy, "The Late Precambrian Greening of the Earth," *Nature* 460 (Aug 2009): 728–32, doi:10.1038/nature08213; Paul K. Strother et al., "Earth's Earliest Non-Marine Eukaryotes," *Nature* 473 (May 2011): 505–09, doi:10.1038/nature09943.

15. Ross, *Navigating Genesis*, 252–253, endnote 38.

16. I briefly describe this challenge to evolutionary creation models in my book, *More Than a Theory: Resolving a Testable Model for Creation* (Grand Rapids: Baker, 2009), 169–70. My colleague Fazale Rana has written numerous articles on our website, http://reasons.org, on the problem of repeated evolutionary outcomes (i.e., repeated design outcomes) for models of biological evolution.

17. For a thorough biblical and scientific defense of this flood model see my book, *Navigating Genesis*, 139–95.

18. Ross, *Navigating Genesis*, 75.

19. Hugh Ross, "Did Arabia Provide a Migration Route for Early Humans?" *Today's New Reason to Believe*, Reasons to Believe, May 28, 2015, http://www.reasons.org/articles/did-arabia-provide-a-migration-route-for-early-humans.

20. Fazale Rana with Hugh Ross, *Who Was Adam? A Creation Model Approach to the Origin of Humanity*, 2nd ed. (Covina, CA: RTB Press, 2015), 127–41, 268–70, 363–65.

21. Ross, *Navigating Genesis*, 97–100.

22. Ibid., 166–69.

23. I contrast the purposes and distinct features of the present creation and the new creation in my book, *Why the Universe Is the Way It Is* (Grand Rapids: Baker, 2008), 27–206.

24. I deal with *nephesh* exceptionalism and human exceptionalism in-depth in *Hidden Treasures in the Book of Job: How the Oldest Book in the Bible Answers Today's Scientific Questions* (Grand Rapids: Baker, 2011), 105–85.

25. For a book-length defense of a day-age human origins model, see *Who Was Adam?*

26. I describe this evidence in "The First Humans Developed Food-Processing Technology," *Today's New Reason to Believe*, Reasons to Believe, October 5, 2015, http://www.reasons.org/articles/the-first-humans-developed-food-processing-technology.

27. Philip Kitcher, "Born-Again Creationism" in *Intelligent Design Creationism and Its Critics*, ed. Robert Pennock (Cambridge, MA: MIT Press, 2001), 259.

28. For a book-length treatment of a day-age model for life's origin, see Fazale Rana and Hugh Ross, *Origins of Life, Biblical and Evolutionary Models Face Off*, 2nd ed. (Covina, CA: RTB Press, 2014).

29. John J. Matese et al., "Why We Study the Geological Record for Evidence of the Solar Oscillation about the Galactic Midplane," *Earth, Moon, and Planets* 72 (Feb 1996): 7–12, doi:10.1007/BF00117495; Adrian L. Melott and Richard K. Bambach, "Do Periodicities in Extinction—With Possible Astronomical Connections—Survive a Revision of the Geological Timescale?" *Astrophysical Journal* 773 (Aug 2013): id. 6, doi:10.1088/0004–637X/773/1/6; W. M. Napier, "Evidence for Cometary Bombardment Episodes," *Monthly Notices of the Royal Astronomical Society* 366 (March 2006): 977–82, doi:10.1111/j.1365–2966.2005.09851.x.

30. For an up-to-date review of the faint-sun paradox, see Hugh Ross, *Improbable Planet*, 143–64.

31. Ross, *Hidden Treasures*, 105–85.

32. Phillip Endicott et al., "Evaluating the Mitochondrial Timescale of Human Evolution," *Trends in Ecology and Evolution* 24 (2009): 515–521; Qiaomei Fu et al., "A Revised Timescale for Human Evolution Based on Ancient Mitochondrial Genomes," *Current Biology* 23 (2013): 553–59; Fluvial Cruciani et al., "A Revised Root for the Human Y Chromosomal Phylogenetic Tree," *American Journal of Human Genetics* 88 (2011): 814–18; Wei Wei et al., "A Calibrated Human Y-Chromosomal Phylogeny Based on Resequencing," *Genome Research* 23 (2013): 388–95.

33. Lev A. Zhivotovsky et al., "Human Population Expansion and Microsatellite Variation," *Molecular Biology and Evolution* 17 (2000): 757–67.

34. I explain and document the limits in chapter 15 of my book *Improbable Planet*.

35. I document this in *Navigating Genesis*, 166–69.

36. John Emsley, *The Elements*, 3rd ed. (Oxford: Clarendon, 1998), 24, 40, 56, 58, 60, 62, 78, 102, 106, 122, 130, 138, 152, 160, 188, 198, 214, 222, 230.

37. Matthias Labrenz et al., "Formation of Sphalerite (ZnS) Deposits in Natural Biofilms of Sulfate-Reducing Bacteria," *Science* 290 (Dec 2000): 1744–47, doi:10.1126/science.290.5497.1744.

38. Don E. Canfield, Simon W. Poulton, and Guy M. Narbonne, "Late-Neoproterozoic Deep-Ocean Oxygenation and the Rise of Animal Life," *Science* 315 (Jan 2007): 92–95, doi:10.1126/science.1135013; Guy M. Narbonne and James G. Gehling, "Life after Snowball: The Oldest Complex Ediacaran Fossils," *Geology* 31 (Jan 2003): 27–30, doi:10.1130/0091–7613(2003)031<0027:LASTOC>2.0.CO;2.

39. Guy M. Narbonne, "The Ediacara Biota: Neoproterozoic Origin of Animals and Their Ecosystems," *Annual Review of Earth and Planetary Sciences* 33 (May 2005): 436, doi:10.1146/annurev.earth.33.092203.122519.

40. Hiroto Kimura and Yoshio Watanabe, "Oceanic Anoxia at the Precambrian-Cambrian Boundary," *Geology* 29 (Nov 2001): 995–98, doi:10.1130/0091–7613(2001)029<0995:OAATPC>2.0.CO;2.

41. R. D. K. Thomas, Rebecca M. Shearman, and Graham W. Stewart, "Evolutionary Exploitation of Design Options by the First Animals with Hard Skeletons," *Science* 288 (May 2000): 1239–42, doi:10.1126/science.288.5469.1239.

42. Xi-guang Zhang and Brian R. Pratt, "The First Stalk-Eyed Phosphatocopine Crustacean from the Lower Cambrian of China," *Current Biology* 22 (Nov 2012): 2149–54, doi:10.1016/j.cub.2012.09.027; Christopher Castellani et al., "Exceptionally Well-Preserved Isolated Eyes from Cambrian 'Orsten' Fossil Assemblages of Sweden," *Paleontology* 55 (May 2012): 553–66, doi:10.1111/j.1475–4983.2012.01153.x.

43. Simon Conway Morris, "The Community Structure of the Middle Cambrian Phyllopod Bed (Burgess Shale)," *Paleontology* 29 (Sept 1986): 423–67.

44. Gregory A. Wray, "Rates of Evolution in Developmental Processes," *American Zoologist* 32 (Feb 1992): 131, doi:10.1093/icb/32.1.123.

45. Kevin J. Peterson, Michael R. Dietrich, and Mark A. McPeek, "MicroRNAs and Metazoan Macroevolution: Insights into Canalization, Complexity, and the Cambrian Explosion," *BioEssays* 31 (July 2009): 737, doi:10.1002/bies.200900033.

46. Jeffrey S. Levinton, "The Cambrian Explosion: How Do We Use the Evidence?" *BioScience* 58 (Oct 2008): 855, doi:10.1641/B580912.

47. I provide an extensive review of current Avalon and Cambrian explosion research and its philosophical implications in *Improbable Planet*, 172–78.

48. Tim Chaffey, "Parallelism in Hebrew Poetry Demonstrates a Major Error in the Hermeneutic of Many Old-Earth Creationists," *Answers Research Journal* 5 (July 2012): 115–23, https://answersingenesis.org/hermeneutics/parallelism-in-hebrew-poetry-reveals-major-hermaneutic-error.

49. Elizabeth Mitchell, "Creating Confusion in Genesis with Hugh Ross," *News to Know*, *Answers in Genesis,* September 27, 2014, https://answersingenesis.org/creationism/old-earth/creating-confusion-genesis-hugh-ross/.

50. ENCODE Project Consortium, "An Integrated Encyclopedia of DNA Elements in the Human Genome," *Nature* 489 (2012): 57–74.

51. Ross, *A Matter of Days,* 145–233.

52. Ross, *Why the Universe*; Hugh Ross, *Beyond the Cosmos: The Extra-Dimensionality of God; What Recent Discoveries in Astronomy and Physics Reveal about the Nature of God*, 2nd ed. (Colorado Springs: NavPress, 1999).

RESPONSE FROM YOUNG EARTH CREATIONISM

KEN HAM

Footnotes

1. Hugh Ross, *Creation and Time* (Colorado Springs: NavPress, 1994), 56.

2. See footnote 1 in my response to Haarsma.

3. Danny Faulkner, *The Created Cosmos: What the Bible Reveals about Astronomy* (Green Forest, AR: Master Books, 2016).

4. See Terry Mortenson, "Inerrancy and Biblical Authority: How Old-Earth Inerrantists Are Undermining Inerrancy," https://answersingenesis.org/is-the-bible-true/inerrancy-and-biblical-authority/.

5. See https://answersingenesis.org/creationism/arguments-to-avoid/the-second-law-of-thermodynamics-began-at-the-fall/ and https://answersingenesis.org/physics/the-second-law-of-thermodynamics-and-the-curse/.

6. See notes 17 and 18 in my chapter.

7. See Terry Mortenson's exposure of this inconsistency in his "Systematic Theology Texts and the Age of the Earth: A Response to the Views of Erickson, Grudem, and Lewis and Demarest," https://answersingenesis.org/age-of-the-earth/systematic-theology-texts-and-the-age-of-the-earth/.

8. See http://www.grammar-monster.com/glossary/literal_meaning.htm and http://grammar.about.com/od/il/g/literalangterm.htm.

9. In Genesis 2:4 we do not find *yom* modified by a number (as in Gen 1) but *beyom* (translated "when" or "in the day that"). The same *beyom* is used in Numbers 7:10 and 84 to refer figuratively to the whole period of twelve numbered literal days (*yom*) of sacrifice (Num 7:11–83).

10. At AiG we don't think he named that many because he named "beasts of the field" (which was a subset of "beasts of the earth" on the land) along with birds, and given the tenfold reference to *kinds* in Genesis 1, he certainly named kinds. There are good reasons to think that he named far less than the approximately fourteen hundred *kinds* of land animals and birds that went on the ark. See https://answersingenesis.org/creation-science/baraminology/which-animals-were-on-the-ark-with-noah/.

11. The Hebrew *qedem* is used in Deut 33:15; Neh 12:46; Ps 68:33; and Isa 19:11. The Hebrew *'olam* is used in Josh 24:2; 1 Sam 27:8; Ps 24:7; Prov 22:28; Isa 44:7; and 58:12. The Greek *archaios* is used in Acts 15:21 and 2 Pet 2:5. Habakkuk 3:6 uses the Hebrew *'ad* for ancient mountains. Second Peter 3:5 (like 2:3) uses the Greek *ekpalai*.

12. http://www.reasons.org/articles/the-major-biblical-creation-texts-creation-accounts.

13. This semi-technical article explains how rapid variation can arise *within* a created kind, in this case a lizard population: http://www.answersingenesis.org/articles/aid/v3/n1/life-designed-to-adapt. See also this three-minute video, http://www.answersingenesis.org/articles/am/v3/n4/rapid-speciation.

14. See Terry Mortenson, "Philosophical Naturalism and the Age of the Earth: Are They Related?" https://answersingenesis.org/age-of-the-earth/are-philosophical-naturalism-and-age-of-the-earth-related/.

15. See Mortenson's illuminating documented analysis of Ross's dates in chapter 5, "When Was Adam Created?" in *Searching for Adam*, ed. Terry Mortenson, also at https://answersingenesis.org/bible-characters/adam-and-eve/when-was-adam-created/.

16. Jonathan Sarfati, *Refuting Compromise: A Biblical and Scientific Refutation of "Progressive Creationism" (Billions of Years), as Popularized by Astronomer Hugh Ross*, 2nd ed. (Atlanta, GA: Creation Book, 2011).

RESPONSE FROM EVOLUTIONARY CREATION

DEBORAH B. HAARSMA

Footnotes

1. For BioLogos's views of inerrancy, see my response to the YEC essay in this volume.
2. For a full assessment of the field, see Christian geologist Ralph Stearley "The Cambrian Explosion: How Much Bang for the Buck?" *Perspectives on Science and Christian Faith* 65/4 (Dec 2013), 245–67.
3. See books and articles cited in my main essay, plus the new book *Adam and the Genome* by Dennis Venema and Scot McKnight (Grand Rapids: Baker, 2017), in which Venema explains the evidence for a large population.
4. E.g., Graeme Finlay, *Human Evolution: Genes, Genealogies and Phylogenies* (Cambridge: Cambridge University Press, 2013).

RESPONSE FROM INTELLIGENT DESIGN

STEPHEN C. MEYER

Footnotes

1. Stephen C. Meyer, "Qualified Agreement: Modern Science and The Return of the God Hypothesis" in *Science and Christianity: Four Views*, ed. Richard Carlson (Downer's Grove, IL: Intervarsity Press, 2000), 129–75.

2. Stephen C. Meyer, "Of Clues and Causes: A Methodological Interpretation of Origin of Life Studies" (PhD diss., Cambridge University, 1990). Charles S. Peirce, "Abduction and Induction," in *The Philosophy of Peirce*, ed. J. Buchler (London: Routledge, 1956), 150–54.

3. Meyer, "Of Clues and Causes," 25.

4. In my essay on intelligent design, I showed how the case for intelligent design—which begins as an abductive inference—has been strengthened by just such a process of elimination, rendering the argument for intelligent design not just an abductive inference, but an abductive inference to the *best* explanation.

5. Meyer, "Of Clues and Causes," 77–136.

6. The scientific references documenting the various discontinuities in the fossil record described in this paragraph and the next are too extensive to be included in this essay given the format and space restrictions of this book. Nevertheless, interested readers can find complete documentation for these claims in Günter Bechly and Stephen C. Meyer, "The Fossil Record and Universal Common Ancestry" in *Theistic Evolution: A Scientific, Philosophical and Theological Critique*, eds. J. P. Moreland, Stephen C. Meyer, Chris Shaw, and Wayne Grudem (Wheaton, IL: Crossway, 2017), 323–53.

7. J. G. M. Thewissen, *The Walking Whales: From Land to Water in Eight Million Years* (Berkeley: University of California Press, 2014), 207.

8. See for example, Stefan Lovgren, "Chimps, Humans 96 Percent the Same, Gene Study Finds," *National Geographic News*, August 31, 2005.

9. Susan Offner, *The American Biology Teacher* 72(4) (2010): 252–56.

10. See, for example, R. Christen et al., *EMBO Journal* 10 (1991): 499–503.

11. Michael Lynch, "The Age and Relationships of the Major Animal Phyla." *Evolution* 53 (1999): 319–25.

12. Richard Buggs, "The Evolutionary Mystery of Orphan Genes," Dec 28, 2016, https://natureecoevocommunity.nature.com/users/24561-richard-buggs/posts/14227-the-unsolved-evolutionary-conundrum-of-orphan-genes.

13. Charles Darwin, *On the Origin of Species*, facsimile of 1st ed., 1859 (Cambridge, MA: Harvard University Press, 1964), 442, 449.

14. Stephen Jay Gould, "Abscheulich! Atrocious!" *Natural History* (March, 2000), 42–44; Adam Sedgwick, "On the Law of Development Commonly Known as von Baer's Law; and on the Significance of Ancestral Rudiments in Embryonic Development," *Quarterly Journal of Microscopical Science* 36 (1894): 35–52.

15. For more complete documentation of these claims see Stephen C. Meyer, Scott Minnich, Jonathan Moneymaker, Paul A. Nelson, and Ralph Seelke, *Explore Evolution: The Arguments for and Against Neo-Darwinism* (Melbourne and London: Hill House, 2007); Stephen C. Meyer, *Darwin's Doubt: The Explosive Origin of Animal Life and the Case for Intelligent Design* (San Francisco: HarperOne, 2014), 114–35.

REJOINDER

HUGH ROSS

Footnotes

1. Jeffrey S. Levinton, "The Cambrian Explosion: How Do We Use the Evidence," *BioScience* 58 (October 2008): 858.

2. Fazale Rana with Hugh Ross, *Who Was Adam?* 2nd ed. (Covina, CA: RTB Press, 2015): 349–53 and citations therein.

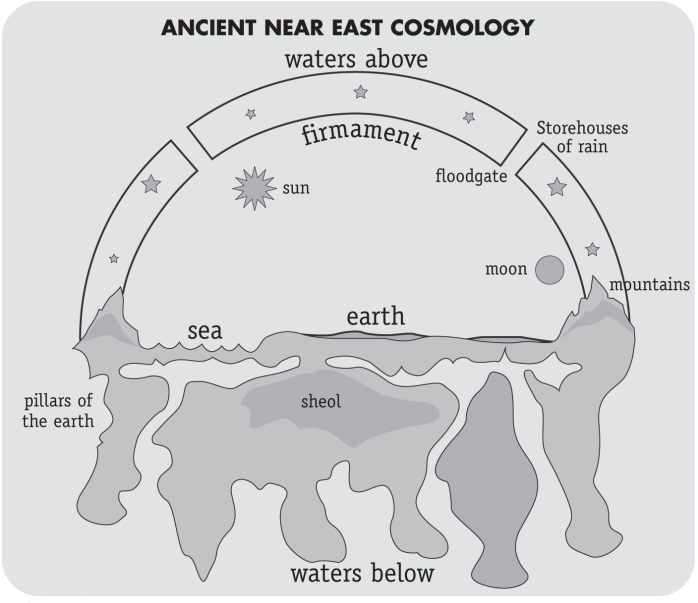
3. Brown, Driver, and Briggs, *Hebrew and English Lexicon*, 398–401; Gesenius, *Hebrew-Chaldee Lexicon*, 341–42; Harris, Archer, and Waltke, *Theological Wordbook of the Old Testament*, 1:370–71.

CHAPTER THREE

EVOLUTIONARY CREATION

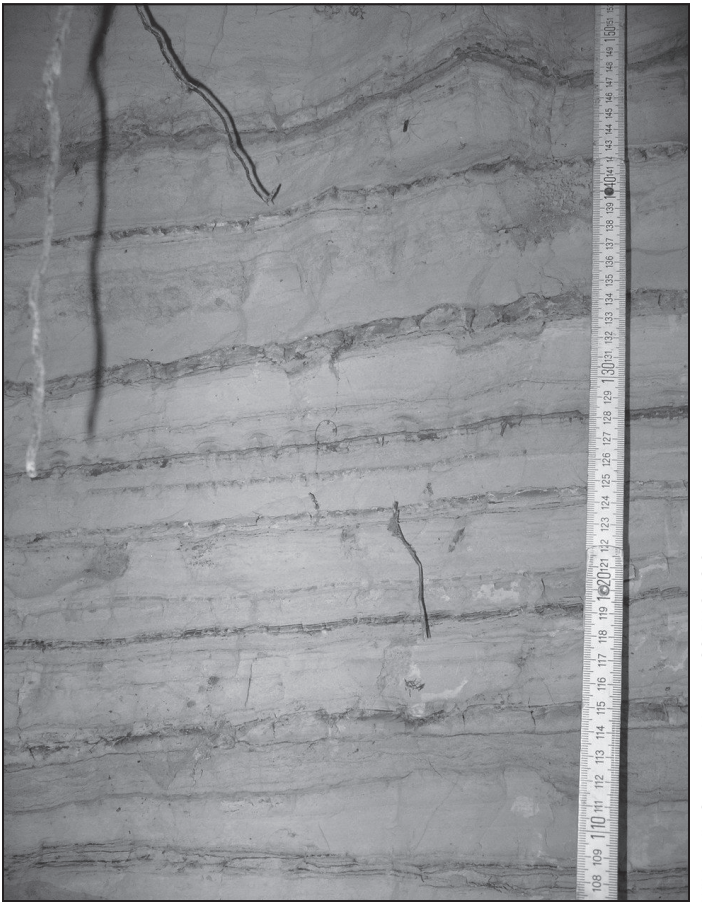
DEBORAH B. HAARSMA

Figure 1



Graphic from *Origins: Christian Perspectives on Creation, Evolution, and Intelligent Design* by Deborah B. Haarsma and Loren D. Haarsma. Used with permission. Copyright © 2011 Faith Alive Christian Resources.[14]

Figure 2



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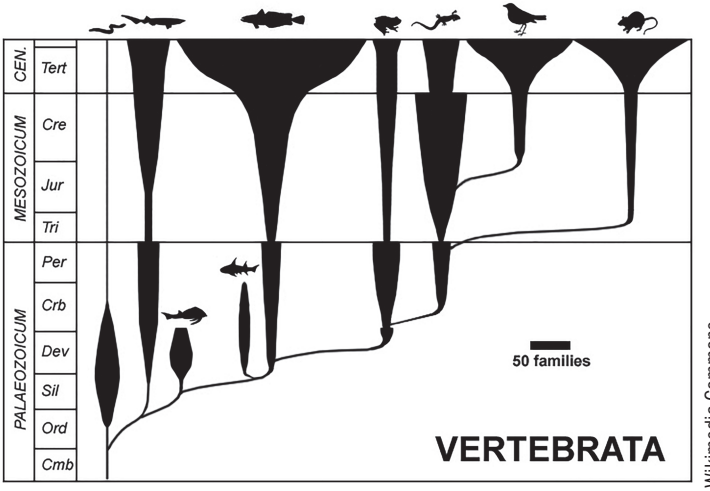
Sedimentary Rock Layers

Figure 3

Wikimedia Commons

Andromeda Galaxy

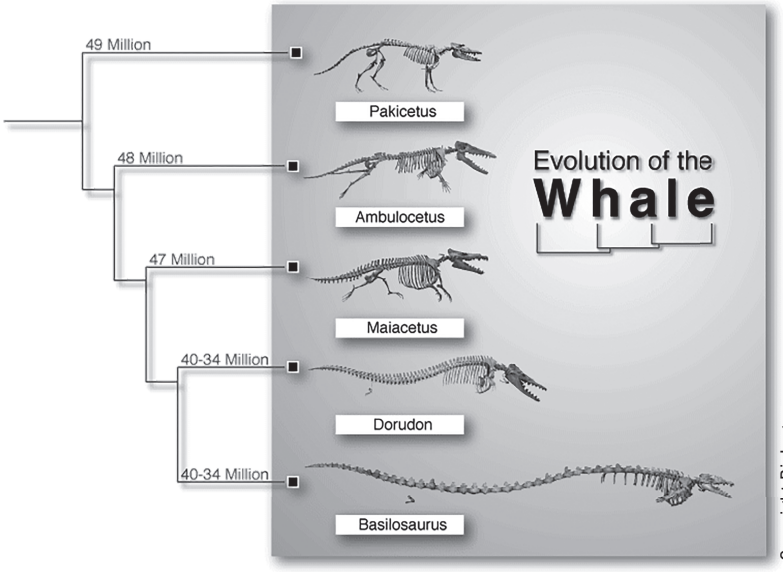
Figure 4



Wikimedia Commons

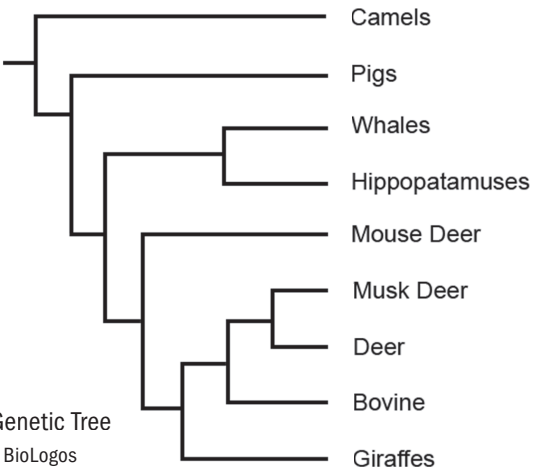
Tree of Common Ancestry for Vertebrates

Figure 5



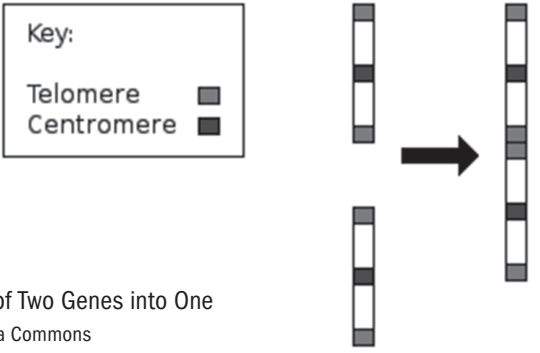
Whale Fossil Sequence

Figure 6



Whale Genetic Tree

Figure 7



Fusion of Two Genes into One

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Footnotes

1. Pew Research Center survey March 21–April 8, 2013. Other Christian groups are more likely to accept that humans evolved: 44 percent of black Protestants, 53 percent of Hispanic Catholics, 68 percent of white Catholics, and 76 percent of white mainline Protestants.

2. See Connor's full story, including how he came back to a vibrant faith in God, at http://biologos.org/blogs/archive/how-science-shook-my-faith.

3. David Kinnaman and Aly Hawkins, *You Lost Me* (Grand Rapids: Baker, 2011), 137.

4. See Natasha's story and how she came to Christ at http://biologos.org/blogs/archive/stories-natasha-strande.

5. The term "theistic evolution" (TE) is also used for this view. Evolutionary creation is a subset of TE that emphasizes that the creator is the personal God revealed in the Bible and incarnated in Jesus Christ.

6. Some sentences and paragraphs in this chapter are derived from BioLogos publications.

7. Francis S. Collins, *The Language of God: A Scientist Presents Evidence for Belief* (New York: Free Press, 2006).

8. Christian historian Mark Noll does a case study of B. B. Warfield in chapter 3 of *Jesus Christ and the Life of the Mind* (Grand Rapids: Eerdmans, 2011).

9. C. S. Lewis, Letter to Captain Bernard Acworth, September 23, 1944, quoted in Gary B. Ferngren and Ronald L. Numbers, *Perspectives on Science and Christian Faith* 48 (1996):28–43, March 1996; http://www.asa3.org/ASA/PSCF/1996/PSCF3–96Ferngren.html.

10. David Frost interviewed Billy Graham in *Billy Graham: Personal Thoughts of a Public Man* (Chariot Victor Pub., 1997), 72–74.

11. Tim Keller, "Creation, Evolution, and Christian Laypeople," BioLogos.org, 2012, http://biologos.org/blogs/archive/creation-evolution-and-christian-laypeople-part-1.

12. "Report on Biblical Authority," *Acts of Synod* (Grand Rapids: Christian Reformed Church in North America), 1972.

13. John Walton, *The Lost World of Genesis One* (Downer's Grove, IL: InterVarsity Press, 2009) and other books.

14. To order a copy of this resource please call 1–800-333-8300 or visit faithaliveresources.org.

15. For more on ancient Near Eastern cosmology and interpretations of Genesis, see articles on the BioLogos website and books such as John H. Walton, *The Lost World of Genesis One*; Robin A. Parry, *The Biblical Cosmos* (Eugene, OR: Cascade, 2014); Kyle Greenwood, *Scripture and Cosmology* (Downer's Grove, IL: InterVarsity Press, 2015); or J. Edward Wright, *The Early History of Heaven* (Oxford: Oxford University Press, 2000).

16. John Calvin, *Institutes of the Christian Religion*, ed. John T. McNeill, trans. Ford Lewis Battles (Philadelphia: Westminster, 1960), 1.13.1.

17.Among evangelical Protestants, 48 percent believe science and religion can work in collaboration, 21 percent see them as referring to different aspects of reality, and only 31 percent see them in conflict (Elaine Howard Ecklund and Christopher Scheitle, "Religious Communities, Science, Scientists, and Perceptions: A Comprehensive Survey," http://perceptionsproject.org/multimedia-archive/religious-communities-science-and-perceptions-a-comprehensive-survey/).

18. Quotations from the blog series by Ted Davis, "The Faith of a Great Scientist: Robert Boyle's Religious Life, Attitudes, and Vocation," http://biologos.org/blogs/ted-davis-reading-the-book-of-nature/series/the-faith-of-a-great-scientist-robert-boyles-religious-life-attitudes-and-vocation.

19. St. Augustine, *On Christian Doctrine*, II.18.28.

20. E.g. Lawrence Krauss, *A Universe from Nothing* (New York: Atria Books, 2013).

21. George Gaylord Simpson, *The Meaning of Evolution* (New Haven: Yale University Press, 1967), 34.

22. In *Proslogion* (the original title of which was *Faith Seeking Understanding*), eleventh-century theologian Anselm wrote: "I do not seek to understand that I may believe, but I believe in order to understand."

23. C. S. Lewis, in the concluding line of "Is Theology Poetry?" in *The Weight of Glory and Other Addresses* (New York: MacMillan, 1949).

24. See the BioLogos website for videos and articles on geological and astronomical age.

25. Planck Collaboration, *Astronomy & Astrophysics* 594, A13 (2016): Table 4, available at https://arxiv.org/abs/1502.01589.

26. See Reflections section below for more on evolutionary mechanisms.

27. For more on the scientific evidence for evolution from Christian biologists, see videos and articles at BioLogos.org, particularly Dennis Venema's blog series "Evolution Basics." See also Darrel R. Falk, *Coming to Peace with Science* (Downers Grove, IL: InterVarsity Press, 2004); Denis R. Alexander, *Creation or Evolution: Do We Have to Choose?* (Oxford: Monarch Books, 2014); and Denis Lamoureux, *Evolutionary Creation* (Eugene, OR: Wipf & Stock, 2008).

28. Pew Research Center, "Strong Role of Religion in Views about Evolution and Perceptions of Scientific Consensus" (Oct 22, 2015). The same misconception was held by 32 percent of Hispanic Catholics, 31 percent of black Protestants, 26 percent of white Catholics, and 26 percent of white mainline Protestants; http://www.pewinternet.org/2015/10/22/strong-role-of-religion-in-views-about-evolution-and-perceptions-of-scientific-consensus/.

29. Pew Research Center "An Elaboration of AAAS Scientists' Views," July 23, 2015, http://www.pewinternet.org/2015/07/23/an-elaboration-of-aaas-scientists-views/.

30. See, for example, "Does Evolutionary Theory Need a Rethink?" in which Kevin Laland et al. and Greg Wray et al. give their positions, *Nature* 514 (Oct 2014): 161–64, http://www.nature.com/news/does-evolutionary-theory-need-a-rethink-1.16080.

31. For more see Deborah B. Haarsma, "Learning to Praise God for His Work in Evolution," in *How I Changed My Mind about Evolution: Evangelicals Reflect on Faith and Science*, ed. Kathryn Applegate and J. B. Stump (Downers Grove, IL: InterVarsity Press, 2016), 40–47.

32. J. B. S. Haldane is reported to have said this often (http://quoteinvestigator.com/2010/06/23/beetles/#more-734), and wrote something similar in his 1949 book *What is Life? The Layman's View of Nature* (London: L. Drummond), 258.

33. For more on the scientific evidence regarding human origins, see infographics and articles at BioLogos.org (including blog series by Dennis Venema on human genetics) and books cited above.

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39. For a good overview, see *Four Views on the Historical Adam* (Grand Rapids: Zondervan, 2014); see also BioLogos.org for other recommended books and articles from multiple viewpoints.

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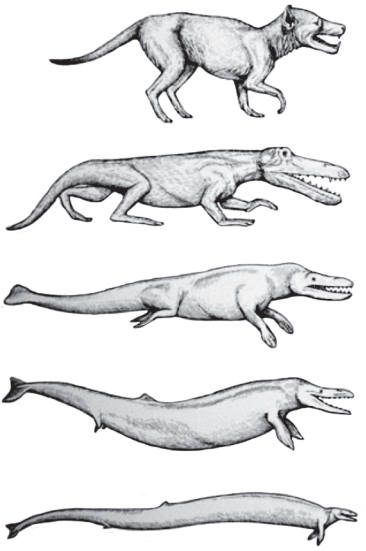
RESPONSE FROM YOUNG EARTH CREATIONISM

KEN HAM



Sinonyx jiashanensis
Lived 56 million years ago
6 feet long

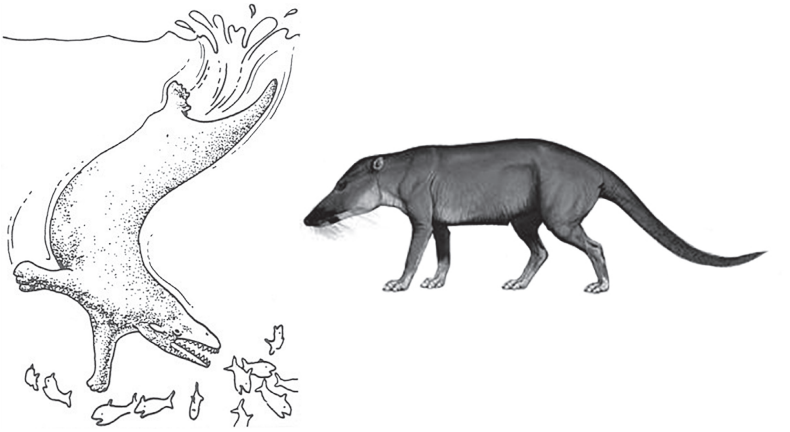
Ambulocetus natans
Lived 49 million years go
11 feet long

Rodhocetus kasrani
Lived 47 million years ago
15 feet long

Dorudon atrox
Lived 39 million years ago
20 feet long

Basilosaurus isis
Lived 39 million years ago
60 feet long

From Dr. Carl Werner's *Evolution: The Grand Experiment* (2014, 3rd ed.), 131. Used with permission.



Pakicetus and Tapir

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4. Job 26:7, 10; Proverbs 8:27; and Psalm 19:6 indicate that the biblical authors and their believing ancient readers believed in a spherical earth resting on nothing. For a discussion of the firmament (Gen 1:6–8) see Danny Faulkner (PhD, astronomy), *The Created Cosmos: What the Bible Reveals about Astronomy* (Green Forest, AR: Master Books, 2016), 39–43.

5. Haarsma picks up on "vault" in the NIV 2011 translation of Genesis 1:6–7 (though the NIV 1984 translates the Hebrew as "expanse"). Walton no longer believes "vault" is a correct translation. See his "Response from the Archetypal View," in *Four Views on the Historical Adam*, eds. Matthew Barrett and Ardel B. Caneday (Grand Rapids: Zondervan, 2013), 67–68.

6. It is very questionable if many of the ancients believed in a flat earth and a hard dome. More likely, modern scholars who don't believe Genesis have interpreted literally the words of the ancients that were intended as metaphors. Regarding this and the diagram Haarsma used, see William Barrick (Hebrew scholar), "Old Testament Evidence for a Literal, Historical Adam and Eve" in *Searching for Adam*, ed. Terry Mortenson, 45–49. Jeffrey Burton Russell

7. See the critique by Steve Ham, "What's Lost in John Walton's *The Lost World of Adam and Eve*?" in *Searching for Adam*, ed. Terry Mortenson, 165–94.

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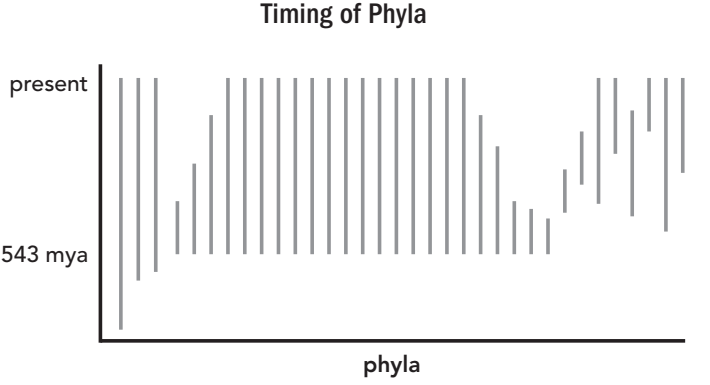
RESPONSE FROM OLD EARTH (PROGRESSIVE) CREATIONISM

HUGH ROSS



Instead of new phyla branching off in a tree-like manner from previously existing phyla, they appear as a lawn, like blades of grass originating without apparent connection to one another.

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RESPONSE FROM INTELLIGENT DESIGN

STEPHEN C. MEYER

Footnotes

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REJOINDER

DEBORAH B. HAARSMA

Footnotes

1. E.g., R. E. Michod and D. Roze, "Cooperation and Conflict in the Evolution of Multicellularity," *Heredity* 86 (Jan 2001): 1–7.

2. For more from several Christian theologians and philosophers, see "The Divine Action Series," BioLogos.org, May–June 2016, http://biologos.org/blogs/jim-stump-faith-and-science-seeking-understanding/series/divine-action.

3. Ross and I expand our conversation in Kenneth Keathley, J. B. Stump, and Joe Aguirre, eds., *Old Earth or Evolutionary Creation? Discussing Origins with Reasons to Believe and BioLogos* (Downers Grove, IL: InterVarsity Press, 2017).

4. For more on whale evolution, see Dennis Venema "Understanding Evolution: Theory, Prediction and Converging Lines of Evidence," BioLogos.org, March–April 2012, http://biologos.org/blogs/dennis-venema-letters-to-the-duchess/series/understanding-evolution-theory-prediction-and-converging-lines-of-evidence. For a detailed whale genetic tree (using solid lines, the current standard), see Andrew D. Foote et al., *Nature Genetics* 47 (2015): 272–275.

CHAPTER FOUR

INTELLIGENT DESIGN

STEPHEN C. MEYER

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18. Thomas Reid, *Lectures on Natural Theology (1780)*, ed. Elmer Duncan and William R. Eakin (Washington, DC: University Press of America, 1981), 59.

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51. Building a new form of animal life requires innovation in form and structure. New protein folds—the subunits of large-scale structure out of which whole proteins are made—constitute the smallest unit of *structural* innovation in the history of life. Thus, a novel protein fold represents the smallest unit of innovation that natural selection can detect. Since building fundamentally new forms of life requires structural innovation, mutations must generate new protein folds for natural selection to have an opportunity to preserve and accumulate structural or morphological innovations. Thus, the ability to produce new protein folds represents a *sine qua non* of macroevolutionary innovation. For this reason, Douglas Axe's experiments tested the difficulty of generating new protein folds, not just new protein functions within an existing folded structure. Though random mutations may produce slight changes in protein functions within a common proteins fold (i.e., without producing a new fold), Axe's work showing that the extreme rarity (and isolation) of novel folds within amino acid sequence space suggested that generating a novel fold requires more new information than could be reasonably expected to arise given the probabilistic resources available to earth's evolutionary history. Thus, Axe's experiments also suggested an *informational* limit to the creative power of the mutation and selection. See Meyer, *Darwin's Doubt* (pp. 221–27) and David Klinghoffer, ed., *Debating Darwin's Doubt: A Scientific Controversy That Can No Longer Be Denied* (Seattle: Discovery Institute Press, 2016) for examples of failed attempts to demonstrate that mutation and natural selection can generate novel protein folds.

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54. Of course, the phrase "large amounts of specified information" begs a quantitative question, namely, "How much specified information would the minimally complex cell have to have before it implied design?" In *Signature in the Cell*, I justify a precise quantitative answer to this question. I show that the de novo emergence of five hundred or more bits of specified information reliably indicates design. See also endnote 53.

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RESPONSE FROM YOUNG EARTH CREATIONISM

KEN HAM

Footnotes

1. Phillip E. Johnson's subtitle to his book is *The Wedge of Truth*.
2. John Sanford, *Genetic Entropy* (Livonia, NY: FMS Foundation, 2014).
3. See Terry Mortenson, *The Great Turning Point*, 27–33.
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RESPONSE FROM OLD EARTH (PROGRESSIVE) CREATIONISM

HUGH ROSS

Footnotes

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2. I document this in chapter 15 of my book, *More Than a Theory* (Grand Rapids: Baker, 2009).
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RESPONSE FROM EVOLUTIONARY CREATION

DEBORAH B. HAARSMA

Footnotes

1. Note, however, that some ID proponents argue for a young earth and some young-earth creationists adopt the language of the Intelligent Design movement.

2. Curiously, ID sees design this way in the fine-tuning of cosmology and physics, but not in the history of life.

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12. “Antony Flew,” Wikipedia.org https://en.wikipedia.org/wiki/Antony_Flew.

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REJOINDER

STEPHEN C. MEYER

Footnotes

1. K. Durston et al., "Measuring the Functional Sequence Complexity of Proteins," *Theoretical Biology and Medical Modelling* 4 (2007): 47; J. Reidhaar-Olson and R. Sauer, "Functionally Acceptable Solutions in Two Alpha-Helical Regions of Lambda Repressor," *Proteins* (1990): 306–16; S. Taylor, et al., "Searching Sequence Space for Protein Catalysts," *Proceedings of the National Academy of Sciences, USA* 98 (2001): 10596–10601; H. Yockey, "A Calculation of the Probability of Spontaneous Biogenesis by Information Theory" *Journal of Theoretical Biology* 67 (1977): 377–98.

2. C. Chiarabelli et al., "Investigation of de novo totally random biosequences, Part II."

3. http://biologos.org/blogs/dennis-venema-letters-to-the-duchess/intelligent-design-and-nylon-eating-bacteria.

4. Seiji Negoro et al., "X-Ray Crystallographic Analysis of 6-Aminohexanoate-Dimer Hydrolase: Molecular Basis for the Birth of a Nylon Oligomer-Degrading Enzyme," *The Journal of Biological Chemistry* 280 (2005): 39644–39652.

5. Kato et al., "Amino Acid Alterations Essential for Increasing the Catalytic Activity of the Nylon-Oligomer-Degradation Enzyme of *Flavobacterium* Sp.," *European Journal of Biochemistry* 200 (1991):165–169.

6. Negoro, et al. "X-Ray Crystallographic Analysis," 39644.

CONCLUSION

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Footnotes

1. Upton Sinclair, *I, Candidate for Governor: And How I Got Licked* (Berkeley: University of California Press, 1994), 109.

2. See Piercarlo Valedsolo, Jun Park, and Sara Gottlieb, "Awe and Scientific Explanation," *Emotion* 16(7) (Oct 2016): 937–40. Commentary on the study by a Christian working in a major scientific research university can be found at http://biologos.org/blogs/deborah-haarsma-the-presidents-notebook/is-science-awesome-for-christians.

3. See, for example, Sara E. Gorman and Jack M. Gorman, *Denying to the Grave: Why We Ignore the Facts That Will Save Us* (Oxford: Oxford University Press, 2017).