Reading evolution into the Scriptures

Adam and the Genome: Reading scripture after genetic science

Dennis R. Venema and Scot McKnight

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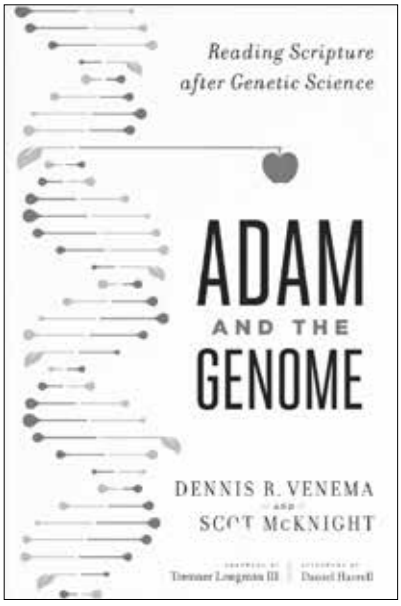

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I have known for some time that I needed to address some of the scientific claims being generated by the self-styled 'evolutionary creationists',[1] but I also wrongly believed that the challenge they were issuing was going to be a strong one. This particular book was divided into two sections—one on the genetics and one on the theology of the subject. This breadth of subject matter makes it difficult for a single person to review. In the end, I was disappointed, for the challenge made by these two authors was weak.

Venema is Professor of Biology at Trinity Western University in Langley, British Columbia, specializing in fruit fly genetics. McKnight is currently Professor of New Testament at Northern Baptist Theological Seminary in Lombard, Illinois.

The setup

Tremper Longman, in the foreword, tells us that forcing young people to choose between evolution and creation "has worked great harm" and those who choose creation "often do so at the cost of their intellect". Invective like this is as unhelpful as it is incorrect. Yet it sets the tone for the entire book and shows what type of argumentation we are dealing with.

Venema then begins the book with a false dichotomy. He describes how he grew up surrounded by people who distrusted science, thought evolution was "evil", and who were apparently disinterested in scholarly pursuits. Thus, he frames his conversion from creationist to evolutionist as a matter of intellectual development.

The holes in this story are manifest. First, most people, including many who believe in evolution, are intellectually lazy. Second, organizations like CMI are on record as encouraging people to not make such arguments.[2] And third, this is the absolute opposite of my own experience. He makes an appeal to the church to adopt evolution so as not to lose the young, going so far as to say this is "for the future of the Kingdom" (introduction, p. x)! Yet, the denomination I grew up in has been hemorrhaging members for decades, as is the case for so many others that compromise on the evolution question.

Early on, Venema makes another poor argument when he tries to explain what he means by 'evolution' by comparing the random changes that occur in DNA to how languages change. But language development cannot be separated from the mind or from conscious choice, e.g. the widespread borrowing of words and phrases. In fact, had he done any homework at all, he would have known that biblical creationists had a ready answer to his false comparison.[3]

Though Venema understands that science flourished in Christian Europe,[4] he fails to note the switch to philosophical naturalism as an underpinning philosophy during the Enlightenment. Prior to that, the Christian philosophy that launched modern science as we know it was rooted in more of a methodological trust that God was upholding the universe in a constant manner.

I discovered a key to deciphering the arguments of both authors: every time they say 'science', one can replace that word with 'philosophical naturalism' to see that it is not science (as an exploration of what we can directly test) to which they are referring. Unsurprisingly, we are also treated to a discussion of the 'two books' fallacy[5] that has been used so often to introduce philosophical naturalism into biblical studies.

Revealing their hand

The attitude displayed by the two authors is sadly typical of those living within the university bubble. In this case, they do not directly mock their opponents, but they also do not fairly represent them. Thus, they lay yet another trap for the incautious reader.

For example, Venema resorts to the genetic fallacy when he says that any biologist who rejects evolution does so "because of prior religious commitments" (p. 40; so is evolution never accepted because of prior

materialistic commitment?). He argues as if there are no scientific reasons to do so,[6] and that the Adam and Eve hypothesis "has not found any experimental support" and therefore is not something "geneticists view as viable" (p. 55). But claiming there is no experimental support for something is not in itself good scientific reasoning. For example, even though the support is very small, this does not mean there is *zero* evidence for things like geocentrism[7] or even a flat earth.[8]

And since *some* geneticists (e.g. Sanford,[9] Jeanson,[10] Tomkins,[11] myself,[12] and many others) view biblical history as viable, his statement is also demonstrably false. Falling afoul of the 'no true Scotsman' fallacy, he claims that evolution is "not controversial to scientists" (p. 65). Read that again, but replace the word 'scientists' with 'philosophical naturalists' and you will see his use of a bait-and-switch. McKnight goes so far as to say the "so-called scientific creationists" operate out of "fear" (p. 101), as if we couldn't possibly have any scientific objections to his ideas (although he has no qualifications in science). He also insists that "an honest and wise reader" will agree with his view that there are two creation accounts in Genesis (p. 102). Here, even though he is hardly an Old Testament scholar, he is tacitly calling his opponents liars.

A quick look at the chapter references reveals that Venema is not well read on the subject he is addressing. For example, he cites very few biblical creationists, has apparently never read my article "Can mutations produce new information"?[13] and is not familiar with the Waiting Time Problem.[14] He then claims that "there does not appear to be anyone in the antievolutionary camp at present with the necessary training to properly understand the evidence" (p. 65) and that "no one in the creationist camp writing about these data seems to understand the evidence, much less has the ability to credibly undermine it" (p. 205, reference 38). These are tremendously sweeping statements in which he refuses to acknowledge the credentials of his opponents. This displays either a lack of scholarship or deceit. I will let the reader decide.

The science

Venema asks why there are no invertebrate tetrapods. His answer is that four-legged animals did not evolve until after animals with backbones evolved and that this progression is reflected in the fossil record. I ask in return: "Why are there no vertebrate hexapods?" or, "If tetrapody is so great, why did it only occur once?" There is nothing preventing evo devo[15,16] from doing things like this, except for the fact that radical changes to an individual's body plan are proscribed by the survivability and reproduction criteria of life. Thus, he is asking a question that neither theory can answer while at the same time ignoring some glaring problems with his own.

Does the fossil record clearly demonstrate evolution, as he adamantly claims? Evolution requires lots of experimentation. The greatest evolutionary innovations, then, would require the greatest number of 'transitions'. Yet, in the fossil record, the greatest leaps in evolutionary technology are spanned by the fewest transitional species (for example, the so-called Cambrian Explosion, with sudden origins of whole phyla, including Chordata,[17] but other examples abound).

Venema talks about the "fishapod" *Tiktaalik* (without mentioning it by name), hailing it as a transition to four-footed creatures,[18] but he fails to mention that tetrapod footprints have been discovered in Poland that predate the supposed evolution of tetrapods from a *Tiktaalik*-like *ancestor* by millions of years.[19] In other words, not only is *Tiktaalik* not transitional, but there is currently no candidate species for the supposed transition. Tetrapods simply 'appear' in the fossil record. Indeed, footprints in general are a problem, as paleontologist Dr Marcus Ross explains:

> "This is a pattern we see in several different groups, where their footprints are first, and their body parts are later. For the trilobites, for the amphibians, for the dinosaurs—the first time I find evidence of them in the fossil record, it's from trackways, not from hard parts. From an old-earth perspective, that's really weird, and hard to grapple with, because you have millions of years of trackway production, then ultimately the animal that made it. But that obviously doesn't make a whole lot of sense. Because if there's trackways, there's animals, and those animals have bones and teeth and shells to them, why aren't they fossilized? Instead the pattern is telling us something different: there's no time between when somebody leaves a track and when somebody's buried."[20]

And what are we to do with the recent discovery of a fully fledged mammal "deep" in Jurassic rocks?[21] The discoverer claimed that mammals originated "at least in the late Triassic". This pushes the supposed origin of mammals to well before the supposed origin of most dinosaurs. Range extensions like this example have been going on for the past two centuries and should make one seriously question today's evolutionary stories.

Venema discusses whale evolution at some length. This is important to me because seeing depictions of *Pakicetus* in *National Geographic* was one of the main reasons I accepted evolution in my early years. Finding out that the image was nothing more than 'artistic license'[22] started me on a long journey into biblical creation. His comment

to the effect that science seems like it is "constantly contradicting itself" because it is being reported by "gullible and uninformed journalists" (p. 7) fails to account for the fact that bad science is being reported at the top-most levels of the evolutionary establishment. Sadly, this has been the case from the beginning.[23] This is a major lapse on his part.

I find it interesting that Venema does not make much use of the 'junk DNA' argument. Maybe, like Francis Collins,[24] he has come to understand that it was a bad argument[25] from the beginning.[26] Yet, Venema does hint at it, strongly. He lists, for example, multiple mutations in olfactory receptor genes that form a nested hierarchy among the great apes and humans (p. 34). But would he be surprised that these belong to one of the most mutated of all gene types among living humans?[27] I do not have a ready answer for why this gene family would fall into a nested hierarchy, but, from experience, I am deeply suspicious of the evolutionary claims.

Concerning human history, there are multiple ways to estimate ancestral population sizes, and he deals with several. But each time he gets into the details he makes assumptions that are overly broad and in many cases might simply be wrong. For example, he spends several pages talking about how genes are shuffled over time. When you have a large population, you will see many different gene combinations, because lots of people means lots of shuffling per generation. Conversely, when you have a historically small population, you will see many fewer gene combinations.

That is all well and good, but to draw the conclusions he does, he assumes that several significant confounding factors do not vary across time or geography. The patterns are affected by the rate of recombination (and it appears that Africans have more recombination events per generation),[28] the potential of 'population substructure' (well attested to in African populations),[29,30] differential generation times (and different cultures would be expected to show differences here), non-equivalent rates of gene conversion (and some now think this varies among individuals, among the sexes, etc.),[31] as well as differences in historic population sizes among the various world populations. An additional known problem is that multiple models can explain the same genetic data, and later events are expected to mask earlier ones in many cases.[32] In the end, yes, some of the data can be explained by evolutionary models, but this does not mean alternate models are necessarily excluded. Unless, that is, one applies circular reasoning.

One strong argument he makes is that, in the case of the insulin gene, humans and chimpanzees are more similar than humans and gorillas. In essence, he is asking: "If these species do not form a nested hierarchy of ancestry, why would God make it appear that they did?" Note that atheistic evolutionists are, in practice, hardly distinguishable from theistic ones, and they also use such arguments—even though the arguments are pseudo-theological, not scientific.[33,34] Also, yes, the pattern does comport to evolutionary history, but no, there is nothing in the biblical model that says the pattern should *not* be like this. This is an old tactic on their part, raising evidence that makes sense under evolution but ignoring that it also makes sense under creation. Shall we call this 'the fallacy of overlapping predictions'?[35]

Tellingly, he avoids any discussion of orphan genes.[36] These unique genes lack any form of nested hierarchy and appear in all branches of life, including the more than 650 genes unique to humans and absent in the great apes.[37] The presence of orphan genes cannot be explained by incomplete lineage sorting.[36] Neither can they be explained by evolutionary mathematics of large populations across several million years.

Another telltale example that shows how he is playing fast and loose with his interpretations is his Figure 3.6 (reproduced here as figure 1). This purports to show a nested hierarchy of descent of humans, chimps, and everything in between from a common ancestor. This is nothing more than a cladogram.[38] That is, a nested-box structure. Any group of things derived from an intelligent source can be categorized by levels of similarity.

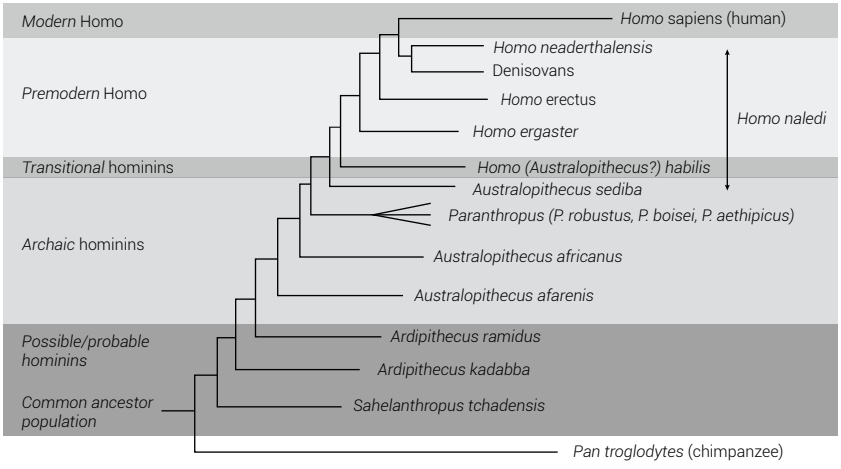

Figure 1. Figure 3.6 from *Adam and the Genome* is nothing more than a cladogram that purports to show a nested hierarchy of descent of humans, chimps, and everything in between from a common ancestor.

Thus, diagrams like this are absolutely expected on both sides, and so cannot be used as evidence of one side against the other. Not only is the link between the genus *Homo* and the australopiths weak in general,[39] but I wryly note that *Homo habilis* (Louis Leakey's[40] pet theory that some have referred to as "the little man that never was"[41]) is labelled as "*Homo* (*Australopithecus*?) *habilis"*. The *key* link between humans and apes is questionable? Indeed so, as many evolutionary anthropologists regard it as a 'wastebasket taxon'.[42]

He starts off his discussion on Intelligent Design with a quote from Darwin, who said: "Any one [*sic*] whose disposition leads him to attach more weight to unexplained difficulties than to the explanation of a certain number of facts will certainly reject my theory"[43] (p. 67). Nonsense like this is easily countered with a quote reputed to be from Einstein: "No amount of experimentation can ever prove me right; a single experiment can prove me wrong."[44] This does not mean that a single contrary experimental result *will* disprove a theory, for an ancillary hypothesis could be disproved while leaving the core theory intact,[45] but in principle all it would take is one ground-shaking new discovery to dislodge Darwin.

It is no wonder that Venema avoids a discussion of carbon-14 in diamonds,[46,47] the presence of soft tissue, DNA, and carbon-14 in dinosaur bones,[48,49] and the detailed experimental results from the evolutionary modelling program *Mendel's Accountant*.[50] All of these argue strongly that deep-time evolutionary theory is deeply flawed and qualify for the 'single experiment' of Einstein.

Mathematics

He, of course, quotes the 95% human-chimp genome-wide similarity claim, ignoring the work of creationists who claim the similarity is much less,[51] as well as the hugely different Y-chromosomes.[52,53] However, even if this high number were true, we still have a problem with evolutionary mathematics. A 5% difference represents many millions of mutational differences, each of which has to arise independently in a single individual in one of the respective populations and then *drift* to the point of fixation. But there have only been a few hundred thousand generations in all of evolutionary human and chimp history. During these relatively few generations, millions of mutations would be simultaneously clamouring for attention, which is a problem that natural selection cannot overcome.[54] The problem has been codified as Haldane's Dilemma,[55] and now has rigorous mathematical and computer modelling behind it. But *Mendel's Accountant* has been used to show that Haldane's Dilemma is much worse than evolutionists have dared to imagine.[56]

When he turns to a discussion of Michael Behe's main thesis in *The Edge of Evolution*,[57] he summarily dismisses it (p. 73). When Venema does get around to actually addressing the claims, it is nothing more than *ad hominem*, but it's mainly abusive *ad hominem*.[58] Behe claimed that changes in complex organisms that require more than a few random mutations cannot happen in evolutionary time (this has now been thoroughly tested by Nelson and Sanford[59]). Behe, Sanford, and others have laid down a strong mathematical challenge. His only response seems to be that 'these things appear to have evolved so they must have'(?). This avoidance of mathematics is par for the course.

He also claims that if a human were reduced to a single breeding pair it would leave "telltale marks" in the genome and create "a severe reduction in genetic variability" (p. 46–47). There are multiple issues with this. First, he is assuming a 'reduction' in population size instead of a starting point of two individuals with no detrimental mutational load. Second, he ignores the possibility of 'created diversity'. This avoids his contention that "one would have to postulate mutation rates far in excess of what we observe for any animal" (p. 48). Yet, since the average individual carries about one third of all common alleles, if you took two random individuals from the *modern* population and put them into an Adam-and-Eve scenario, a huge fraction of worldwide allelic diversity would be retained. Third, in an exponentially growing population, there is almost no genetic drift. Thus, a one-generation population bottleneck would not leave the telltale marks he is expecting.[60,61] Citing the current lack of variability among Tasmanian devils (p. 47) is a distraction, because the reason for the lack of variability was a *prolonged* bottleneck.

A theology of absence

Venema wraps up his section with a claim that science has revealed to us how God brought His creation into being (pp. 90–91). But where is God in any of this? From the big bang, to the origin of life, to the advent of modern man, God is absolutely and unequivocally irrelevant in the naturalistic mind. The second half of the book was written by Scot McKnight, who admits to being new to the scene (p. 96) and who leans heavily on people like John Walton[62] and Peter Enns[63] for his theology. I do not want to take much time to review McKnight's material, for these ideas have been reviewed thoroughly already.

However, he starts out with a grand deceit. Many students of the Bible have been taught that "a text without a context is a pretext". He takes that idea and spins it to mean one must look at the Genesis text in the context of other Ancient Near Eastern (ANE) writings. In so doing, he has taken a sound method of textual exegesis and morphed it into something most Bible

teachers never intended. Worse, in all his discussion of how the Genesis text relates to those of other cultures, he demonstrates beyond any shadow of doubt that the Genesis account is unique among its peers. There is but one God in the Genesis account, who is not lonely or tired, or sexually charged, or trapped within the cosmos, or even anthropomorphic. He is not powerless to stop evil, nor is He involved in 'theomachy' (a heavenly war among the gods). This completely undercuts his arguments, and why he can't see that is a mystery.

In one chapter, he lays out 12 theses, only some of which are true, although some are interesting (like the idea of Earth being created as a temple for God). He also spends considerable time discussing the differences between the literary, historical, biological, and genealogical Adam and Eve. I found this unsatisfactory, because these ideas are merged by the later biblical writers (e.g. Luke traces Jesus' lineage to the genealogical ancestor Adam, who must then be the historical, and biological, ancestor, who we can only learn about in the literary text of Genesis). In another chapter, he talks about the 'variety' of Adams and Eves in the Jewish world. But Jesus had little patience for the philosophers and theologians of his time. He must be allowed to correct their misunderstandings. Thus, when he makes statements to the Pharisees like "Have you not read" in Matthew 19:4–8, while using Adam and Eve for a discussion on marriage, He is making an explicit appeal to the historicity of the text.

McKnight says that "Paul's Adam is unlike anything we've seen in the Jewish traditions" (p. 181). But does not Paul have the authority to correct the situation?[64] Or is Paul just a theologian, perhaps on the level of McKnight? He says he is "not assuming … Paul somehow got it wrong" (p. 176). But even if he does not think Paul made a biblical error, he thinks the Bible itself is in error! Also, Paul displayed a mastery of various Greek philosophical schools, eviscerating them at the Areopagus (Acts 17:22–23) and quoting from them at various points in his letters. If Paul was not inspired to correct the views of his day, what is the Bible? In fact, the many examples of people struggling with the historicity of Adam in New Testament times could be seen as people wrestling with the plain meaning of the words in Genesis and trying to accommodate them to the ideas and ideals of the day. We could say the same for the authors of this book.

McKnight spends a lot of time discussing Romans 5:12,[65] saying that Bible expositors have got it wrong since the time of Augustine. But the idea that death entered the world through Adam's sin is not just rooted in Romans 5:12. In fact, Romans 8:19–22 states that the entire universe is suffering under the weight of Adam's sin,[66] which makes no sense if McKnight is right that sin is in the world because "*each person sins in the way Adam sinned*" [emphasis in original] (p. 184). Adam was born *different*. He was born without sin and had a choice to make. We are born in a world already condemned to a certain and specific fate. Adam is our *federal* (covenantal, representative) head, which is why God saw us fall 'in Adam'. Thus, when Jesus set Himself up as the *federal* head of the church, He was modelling Adam, and replacing Adam. Romans 5:12 is just one link in a chain of related ideas.

Naturalism starts by rejecting God's words in Genesis. Should we then re-interpret the science of Genesis in light of modern naturalistic science? This is the definition of circularity and the formula can only produce one result: a rejection of the historicity of Genesis. But what follows is a rejection of much of the Christian tradition. It is clear that both authors do exactly that.[67]

References

1. Woodmorappe, J., 'Evolutionary creation'—evolution rules supreme, A review of Evolutionary Creation: A Christian approach to evolution by Denis O. Lamoureux, *J. Creation* **27**(3):17–22, 2013; creation.com/lamoureux.
2. See for example creation.com/dontuse.
3. Steel, A.K., The development of languages is nothing like biological evolution, *J. Creation* **14**(2):31–40, 2000; creation.com/language_development.
4. Williams, A., The biblical origins of science: A review of *For The Glory of God: How monotheism led to reformations, science, witch-hunts and the end of slavery* by Rodney Stark, *J. Creation* **18**(2):49–52, 2004; creation.com/stark.
5. Kulikovsky, A., Scripture and general revelation, *J. Creation* **19**(2):23–28, 2005; creation.com/genrev.
6. See, for example, creation.com/evolutions-achilles-heels.
7. Carter, R. and Sarfati, J., Why the Universe does not revolve around the Earth: Refuting absolute geocentrism, creation.com/geocent, 12 Feb 2015.
8. Carter, R. and Sarfati, J., A flat earth, and other nonsense: Dealing with ideas that would not exist were it not for the Internet, creation.com/refuting-flat-earth, 13 Sep 2016.
9. creation.com/sanford.
10. answersingenesis.org/bios/nathaniel-jeanson.
11. icr.org/jeffrey_tomkins.
12. creation.com/carter.
13. Carter, R.W., Can mutation produce new information? *J. Creation* **25**(2):92–98, 2011; creation.com/mutations-new-information.
14. Sanford, J., Brewer, W., Smith, F., and Baumgardner, J., The waiting time problem in a model hominin population, *Theoretical Biology and Medical Modelling* **12**:18, 2015; tbiomed.biomedcentral.com.
15. Williams, A., Evo Devo refutes neo-Darwinism, supports creation, *J. Creation* **19**(3): 40–44, 2005; creation.com/evo-devo2.
16. White, D., Climbing Mt Improbable 'evo devo' style, *Creation* **31**(4):42–45, 2009; creation.com/evo-devo.
17. Woodmorappe, J., The Cambrian explosion in colorful, zoological context: A review of *The Cambrian Explosion: The construction of animal biodiversity* by Douglas H. Erwin and James W. Valentine, *J. Creation* **27**(3):37–40, 2013; creation.com/cambrian.
18. See Woodmorappe, J., Tetrapods from Fish? A review of *Gaining Ground: The origin and evolution of tetrapods*, 2nd edn by Jennifer A. Clack, *J. Creation* **28**(1):26–30, 2014; creation.com/tetrapods-from-fish.
19. Walker, T., Is the famous fish-fossil finished? *Tiktaalik*, the transitional star, faces an evolutionary dead-end, *Creation* **32**(3):38–39, 2010; creation.com/tiktaalik-finished.
20. Ross, M., in *Is Genesis History?* Compass Cinema, 2017.
21. Switek, B., Chisel-Toothed Beasts Push Back Origin of Mammals, 10 Sep 2014; news.nationalgeographic.com.

22. Williams, A. and Sarfati, J., Not at all like a whale, *Creation* **24(4)**:20–22, 2005; creation.com/pakicetus.
23. Grigg, R., Abandoned transitional forms, *Creation* **33(2)**:12–15, 2011; creation.com/abandoned-transitional-forms.
24. Collins, F., *The Language of Life*, Free Press, New York, p. 5, 2011.
25. Klinghoffer, D., On junk DNA claim, Francis Collins walks it back, admitting 'hubris', evolutionnews.org, 19 July 2016.
26. Carter, R.W., The slow, painful death of junk DNA, *J. Creation* **23**(3):12–13, 2009; creation.com/junk.
27. Conrad, D.F., A high-resolution survey of deletion polymorphism in the human genome, *Nature Genetics* **38**(11):75–81, 2006.
28. Hinch, A.G. *et al.*, The landscape of recombination in African Americans, *Nature* **476**:170–177, 2011.
29. Schiffels, S. and Durbin, R., Inferring human population size and separation history from multiple genome sequences, *Nature Genetics* **46**(8):919–927, 2014.
30. Nielsen, R. *et al*., Tracing the peopling of the world through genomics, *Nature* **541**(14): 302–309, 2017.
31. Halldórsson, B.V. *et al*., The rate of meiotic gene conversion varies by sex and age, *Nature Genetics* **48**(11):1377–1387, 2016.
32. Myers, S., Fefferman, C., and Patterson, N., Can one learn history from the allelic spectrum? *Theoretical Population Biology* **73**:342–348, 2008.
33. Dilley, S., Nothing in biology makes sense except in light of theology? *Studies in History and Philosophy of Biological and Biomedical Sciences* **44**:774–786, 2013.
34. Sarfati, J., Rats! A toothless argument for evolution, *Creation* **24**(1):45, 2001; creation.com/rats.
35. I explained this deceit in an article, How to Think, not What to Think, creation.com/how-to-think, 1 Nov 2016.
36. Tomkins, J. and Bergman, J., Incomplete lineage sorting and other 'rogue' data fell the tree of life, *J. Creation* **27(3)**:84–92, 2013; creation.com/rogue-data.
37. Demuth, J.P. *et al*., The evolution of mammalian gene families, *PLoS One* **1**(1):e85, 2006.
38. Doyle, S., Cladistics, evolution and the fossils, *J. Creation* **25(2)**:32–39, 2011; creation.com/cladistics.
39. Woodmorappe, J., The non-transitions in 'human evolution'—on evolutionists' terms, *J. Creation* **13**(2):10–12, 1999; creation.com/non-transitions.
40. Grigg, R., Missing the mark: How a missionary family gave rise to the top name in 'apeman' research (Louis Leakey)! *Creation* **26(3)**:24–27, 2004; creation.com/leakey.
41. See Bell, P., *Homo habilis* hacked from the family tree: New hominid fossils have 'completely changed the story' of human evolution; creation.com/habilis, 2007.
42. Line, P., Fossil evidence for alleged apemen—part 1: the genus *Homo*, *J. Creation* **19(1)**:22–32, 2005; creation.com/apemen1.
43. Darwin, C., *On the Origin of Species*, p. 82, 1st edn, 1859.
44. This quotation can be found in various forms online, but is generally assumed to be from Einstein.
45. Sarfati, J.D., Loving God with all your mind: logic and creation, *J. Creation* **12(2)**:142–151, 1998; creation.com/logic#prediction.
46. Vardiman, L., Snelling, A., and Chaffin, E., *Radioisotopes and the Age of the Earth*, vol. II, Institute for Creation Research, CA, 2005. See ch. 8 by John Baumgardner, "^{14}C evidence for a recent global flood and a young earth".
47. Sarfati, J., Diamonds: a creationist's best friend, Radiocarbon in diamonds: enemy of billions of years, *Creation* **28**(4):26–27, 2006; creation.com/diamonds.
48. Smith, C., Dinosaur soft tissue: In seeming desperation, evolutionists turn to iron to preserve the idea of millions of years, creation.com/dinosaur-soft-tissue, 28 Jan 2014.
49. Anderson, K., *Echoes of the Jurassic*, CRS Books, Chino Valley, CA, 2016; see creation.com/triceratops.
50. See Sanford, J., Critic ignores reality of Genetic Entropy: The author of a landmark book on genomic decay responds to unsustainable criticisms, creation.com/genetic-entropy, 7 Mar 2013.
51. Tomkins, J. and Bergman, J., Genomic monkey business—estimates of nearly identical human–chimp DNA similarity re-evaluated using omitted data, *J. Creation* **26**(1): 94–100, 2012; creation.com/chimp.
52. Hughes, J.F. *et al*., Chimpanzee and human Y chromosomes are remarkably divergent in structure and gene content, *Nature* **463**: 536–539, 2010.
53. Carter, R.W., The chimpanzee Y chromosome is radically different from human, creation.com/chimp-y-chromosome, 16 December 2010.
54. Sanford, J.C. and Nelson, C.W., The next step in understanding population dynamics: comprehensive numerical simulation; in: Fusté, M.C. (Ed.), *Studies in Population Genetics*, *InTech*, pp. 117–136; intechopen.com/books/studies-in-population-genetics/the-next-step-in-understanding-population-dynamics-comprehensive-numerical-simulation.
55. ReMine, W.J., Cost theory and the cost of substitution—a clarification, *J. Creation* **19**(1):113–125, 2005; creation.com/cost.
56. Rupe, C. and Sanford, J.C., Using Numerical Simulation to Better Understand Fixation Rates, and Establishment of a New Principle: Haldane's Ratchet; in: Horstemeyer, M. (Ed.), *Proc. Seventh Int. Conf. Creationism*, Creation Science Fellowship, Pittsburgh, PA, 2013.
57. Batten, D., Clarity and confusion, A review of *The Edge of Evolution: The search for the limits of Darwinism* by Michael J. Behe, *J. Creation* **22**(1):28–33, 2008; creation.com/edge-evolution.
58. Luskin, C., Intelligent Design and the Origin of Biological Information: A Response to Dennis Venema, *Evolution News & Views*, 3 Oct 2011.
59. Nelson, C.W. and Sanford, J.C., The effects of low-impact mutations in digital organisms, *Theoretical Biology and Medical Modelling* **8**:9, 18 April 2011.
60. Carter, R.W. and Powell, M., The genetic effects of the population bottleneck associated with the Genesis Flood, *J. Creation* **30**(2):102–111, 2016.
61. Carter, R.W., The non-mythical Adam and Eve! Refuting errors by Francis Collins and BioLogos, creation.com/biologos-adam, 20 Aug 2011.
62. Halley, K., John Walton reimagines Adam and Eve, *J. Creation* **29**(2):47–51, 2015.
63. Smith, C., The Sin of Certainty—A book review: Telling Christians you can't trust the Bible (but you should trust God anyway), creation.com/sin-certainty, 14 June 2016.
64. Turner, R., Where did Paul get his authority? carm.org/paul-authority, undated.
65. For a far superior discussion, see Cosner, L., Romans 5:12–21: Paul's view of a literal Adam, *J. Creation* **22**(2):105–107, 2008; creation.com/romans5.
66. Smith, H.B., Cosmic and universal death from Adam's Fall: An exegesis of Romans 8:19–23a, *J. Creation* **21**(1):75–85, 2007; creation.com/romans8.
67. Cosner, L., Evolutionary syncretism: a critique of BioLogos, creation.com/biologos, 7 Sep 2010.