

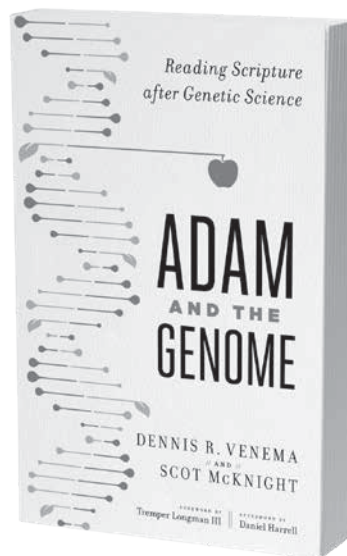
KEYWORDS: Human Genome Project, “historical” Adam, intelligent design, primacy of scripture

BOOK REVIEW

ADAM *and the* GENOME

Reading Scripture after Genetic Science

by Dennis R. Venema and Scot McKnight

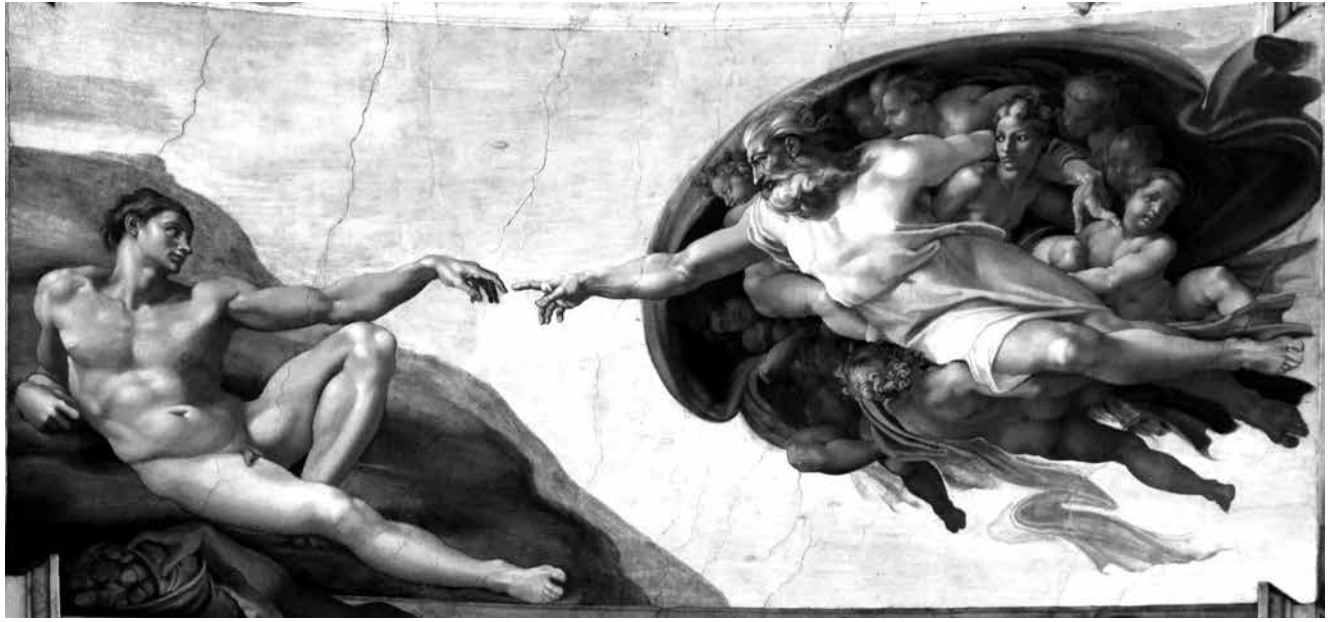


BY BRYAN NESS

The central premise of *Adam and the Genome* is that data from modern genetics, and especially from the Human Genome Project, calls into question the existence of an historical Adam. Christians have long assumed that the Genesis account of Adam and Eve should be taken literally, and that all of mankind are direct descendants of this single human couple created by God. Even less-literal interpretations, that have accepted that humans may have evolved from lower primates, still assume that at some point God stepped in and gave the first

human couple a soul and that original sin began with this first couple, who then passed it on to the rest of humanity. Such views were possible when all that was known about potential human origins was based on basic similarity with other primates and a small collection of pre-human fossils.

Data from modern genetics, and especially from population genetics, has called the above views into question, and suggests that all humans today descended from an ancient population of humans of no less than 10,000 individuals. If it were just one line of evidence,



The Creation of Adam by Michelangelo on the Sistine Chapel's ceiling, (fresco, c. 1508–1552). It depicts the Biblical creation narrative from the Book of Genesis, in which God gives life to Adam.

this conclusion might seem easy to refute, but several independent population genetics methods, using different kinds of genetic data, lead to the same basic conclusion. Some methods allow scientists to peek even farther into the past and estimate minimum population sizes in the evolution of pre-human populations.

In the first half of the book, Dennis Venema presents the evidence that modern humans are derived from a population of no less than 10,000. He spends the first chapter explaining how scientists establish what is “true” and what the word “theory” means to scientists. Unlike what many lay people, especially Christian lay people, have been led to believe, the word “theory” does not mean a “tentative or highly speculative scientific conclusion,” but is rather a more robust conclusion, often supported by numerous lines of evidence.

Venema then proceeds to show, using examples from science, just how theories are developed and why scientists consider theories to represent robust and predictive conclusions based on solid data. Woven into this discussion is the reminder that Christians have traditionally considered there to be two books that reveal God and His work: scripture and nature. Thus, if we truly value both as sources of knowledge about God, when they seem to disagree, we need to be willing to reassess both books and reinterpret one or the other or both, as better understanding is obtained. In the history of the church,

though, the scriptures have often taken primacy, even to the point of ignoring clear evidence from nature. The best example of this approach is the refusal of church theologians in the fifteenth and sixteenth centuries to discard the earth-centered model of the universe, assumed to be presented in the Bible, for the sun-centered model of Copernicus. It took more than 100 years for theology and science to come together in support of the sun-centered system we know today.

In Chapter 2, Venema plunges into the science, giving a tutorial and history of genetics and the Human Genome Project that should enable most non-scientists to understand the evidence he later presents. Creation science has often felt confident in debunking human and primate evolution because it was based primarily on analysis of a small number of early human and other hominin fossils. Considering new data from modern genetics, such an easy dismissal is impossible. So many lines of genetic evidence consistently support the evolution of humans and primates from older vertebrate lineages that it is hard to know where to start attacking the evidence. Here is a sampling of the main lines of evidence:

- The greater similarity in the sequence of many functional genes between humans and primates than between humans and other mammals, such as dogs.¹

- Non-functional olfactory genes in humans and primates, shared with functional versions in dogs, that have the same mutations among primates causing them to be non-functional.²
- The presence of non-functional, partial vitellogenin gene sequences in humans (and other primates) that share sequence similarity with functional vitellogenin genes in chickens, including sequence similarities in adjacent regions of DNA that involve both coding and noncoding DNA.³

The deeper scientists dig into the genomes of living organisms, the more evidence there is for common ancestry for all vertebrates, from fish to humans.

Chapter 3 is the climax of the first half of the book. The arguments that Venema uses to show that modern humans must have originated from a population of no less than 10,000 individuals are complex, and not readily accessible to non-scientists, or even to many scientists, but as a biologist who is trained in population genetics, I can say with confidence that the data and analysis are compelling. Venema does as good a job as anyone could in explaining these arguments so that non-scientists at least have a chance of grasping them.

Venema also makes it exceedingly clear that his intent is not to discount or disrespect the Bible, which he considers to be an inspired book, and claims that it should hold primacy as we develop our understanding of God. Rather, he is urging an honest look at the scientific evidence and a re-evaluation of how we interpret Genesis. If God's two books do indeed share the same author, we must do this.

Venema also confronts the problem of the "historical" Adam directly. For most Christians, the reasoning goes, if there is no historical Adam, then there is no way to save the doctrine of the plan of salvation. This is a valid concern, and Venema suggests there may be other ways of viewing

Adam that would support our understanding of the plan of salvation, such as an archetypal, genealogical, or literary Adam. For the most part, the discussion of the implications inherent in the loss of an historical Adam are left to the second half of the book, which is by the coauthor and is heavily theological.

Before plunging into the theological thicket, Venema takes one more chapter to cover a related topic: intelligent design (ID). In addition to providing evidence questioning the historicity of Adam, the human genome project has also provided evidence that questions some aspects of ID theory. One of the central tenets of ID is that irreducibly complex biochemical systems cannot

have evolved, because several intermediate steps, each of which has no selective advantage, are required to evolve such innovations. Thus, according to ID, all the required pieces would have had to occur simultaneously, which is statistically impossible. Creation apologists often use such biochemical examples as proof that God must have designed and created them.

Central to ID arguments is opposition to the evolutionary model where new genes evolve

from unused copies of older genes, the claim being that not a single plausible example of such a process has been found. Venema shares an example of a duplicated gene in fruit flies that has diverged enough to take on a new, and now essential, function.⁴ In addition, he recounts the discovery of the new enzyme, nylonase, that evolved in bacteria, enabling them to break down nylon and use it as a carbon source⁵, and of unique human genes that are highly similar to non-coding DNA sequences in other primates, suggesting that the "new" gene in humans evolved from these non-coding sequences.⁶

Venema interprets the failures of ID not as a sign that God is not the creator, but rather that God is an even more magnificent creator, in that he designed living systems to be able to evolve just as evolutionary biology has proposed. As Venema states:

Being honest requires recognition that sometimes science can tell us true things that, if we are honest, must be held to be true, even if they seem to run counter to what we want to believe based on scripture.

Could it be that God, in His wisdom, chose to use what we would call a “natural” mechanism to fill His creation with biodiversity adapted to its environment? And to use evolution to allow His creation to continue to adapt as that environment’s conditions shifted over time? If He did, would he be any less a creator than if He had done so miraculously? I think not. Though it is not something that science can speak to—since it goes beyond what science can establish—I view evolution as God’s grand design for creating life.⁷

The remainder of the book deals more closely with the theological issues that arise from the scientific evidence and is written by Scot McKnight, a theologian by training. McKnight begins by summarizing how his own approach to science and scripture evolved, starting from a position of fundamentalism, where scripture and evolution are in stark opposition—considering evolution a purely atheistic philosophy—to a more mature perspective where both scripture and science have equally valid things to say. McKnight acknowledges how challenging the issue of Adam’s historicity is in light of scientific evidence, and lays down some principles he believes must be followed in trying to solve the dilemma.

The four principles he outlines are 1) respect, in this case for the story related in Genesis; 2) honesty; 3) sensitivity to the student of science; and 4) the primacy of scripture. Respecting the story, as it is related in Genesis, means reading it carefully in the context in which it was written, recognizing the limitations of the author and the nature of the original audience, most notably, that it was written in a pre-scientific era. Thus, we should not force a reading of Genesis that goes beyond the scientific understanding of its time.

Honesty may be one of the more difficult principles and extends to both the scriptures and to science. Being

honest requires recognition that sometimes science can tell us true things that, if we are honest, must be held to be true, even if they seem to run counter to what we want to believe based on scripture. This does not mean one cannot hold a theological belief that is apparently incompatible with scientific knowledge, but it does mean an open recognition of such paradoxes. This honesty cuts both ways, because sometimes science does not have all the data to support (or fail to support) a particular theological view, and this needs to be openly acknowledged as well.

Sensitivity to the student of science is important because many students who are steeped in a fundamentalist approach to scriptural interpretation and understand the

Genesis account in a completely literal sense, will find scientific evidence a threat to their faith. It is easy, when facing overwhelming scientific data, to conclude that science so thoroughly negates the truth of the Bible that the student of science sees the only one option: throwing out scripture entirely and embracing evolutionary theory as an atheist. We need to help students of science see that, although scientific data

may require a reinterpretation of Genesis, it does not mean that Genesis is irrelevant or uninspired.

The fourth principle, the primacy of scripture, is related to the previous principle, and is a reminder that a serious student of God’s two books recognizes that scripture is still the inspired word of God. Scriptural interpretation may have to be adjusted so that it is compatible with established scientific knowledge, but it remains central to religious belief.

A central theological question that always arises in these discussions is whether there was an historical Adam. McKnight believes the adjective “historical” is problematic, because it biases the question, immediately assuming that in order for the Bible to be true, there must have been a literal person named Adam that meets all the usual fundamentalist criteria. He suggests the possible use of several other potential adjectives, such as “archetypal,” “genealogical,” or “literary.” In the remainder of the book,

The assumption in evangelical theology is that Adam must be our literal historical and genealogical ancestor, or the Bible and the story of the fall and redemption make no sense.

McKnight explores these alternative ways of viewing Adam, and what effects these alternatives have on Christian theology.

There is no easy way to summarize the complex arguments that fill the last three chapters, and in many ways, they represent a work in progress that will likely not be completely satisfying to many conservative Christians. In Chapter 6, McKnight first presents summaries of four, ancient, Near-Eastern creation stories to give some context to the account in Genesis. He makes no assumptions about whether the author of the Genesis account has read or heard of these stories, but recognizes that, at the very least, the ideas in these stories would have been infusing the culture of the time, thus giving some hint of the purpose and central truths of the Genesis account. There are many similarities among these several creation stories, but also striking differences between the Genesis account and the other four, most notably that the Genesis account considers creation the work of a single God, rather than a group of gods. McKnight draws frequently from ideas presented by John Walton in his book *The Lost World of Genesis One*⁸ to make his arguments.

McKnight further explores the intent of the Genesis account relative to the other contemporary creation stories in the form of twelve theses. For example, Thesis 1 reads:

God is one, and this one God is outside the cosmos, not inside the cosmos as the gods of the ancient Near East are. The God of Adam and Eve is unique as the superior one. Genesis 1–2 is more about God than Adam and Eve or the creation of the world. This one true God of Israel, as the New Testament will state explicitly, creates the universe through the Son of God, who is the Wisdom of God.⁹

And Thesis 11:

McKnight essentially dispenses with the entire concept of original sin, arguing that Paul’s key statement used in support of this doctrine has been misinterpreted due to translation inaccuracies.

To read the Bible in context means to know where the Adam and Eve story will go in the pages ahead. What will become evident to the one who reads the whole Bible is that Adam and Eve are not just two individuals but representatives of both Israel and Everyone. Hence, Adam and Eve’s sin is Israel’s prototypical sin, their “exile” is Israel’s exile, and they therefore represent the sin and discipline of Everyone.¹⁰

McKnight finally concludes that the easiest way to reconcile the Adam and Eve of Genesis with the findings of modern genetics would be to consider them literary figures used to tell the story of God’s creation of humans and the birth of Israel. The assumption in evangelical theology is that Adam must be our literal historical and genealogical ancestor, or the Bible and the story of the fall and redemption make no sense. The apparent clash between science and theology is especially troubling. What if these assumptions are wrong? McKnight spends the final two chapters exploring the “many Adams” of Jewish tradition, and finally the Pauline Adam, to see if our modern Adam is the same one the Bible writers and interpreters recognize.

In intertestamental Jewish literature, McKnight identifies “seven kinds” of Adam and Eve. He gives short labels to each of these: the archetypal, moral Adam (Sirach); the immortal and just Adam of wisdom (Wisdom of Solomon); logos Adam (Philo of Alexandria); Adam of Torah observance (Jubilees); Roman Adam (Josephus); fallen Adam (4 Ezra); and Adam as everyone (2 Baruch). His contention is that Jewish thought did not have a single view of Adam, and that when Paul writes about Adam, he was drawing from some of these diverse threads. These “seven kinds” of Adam overlap in various ways, and share various degrees of literalness, some treating Adam in a more literary or allegorical way.

This whirlwind tour of intertestamental Jewish sources is confusing at times and left me with the sense

that I need to read these sources myself more critically. One thing that does seem clear is that all these writers seem to focus on the literary Adam, possibly also assuming that he is the genealogical Adam. The problem of sin also seems to be prevalent, although it is never clear from any of the authors that the sins of each of us now are the fault of Adam. Adam is portrayed as the first to break a covenant relationship with God, but each of us is challenged to renew that covenant and not repeat Adam's mistake.

McKnight presents what he calls two non-negotiable conclusions from his study of intertestamental Jewish thought. First, "the Adam of each of these writings is consciously and constantly the Adam of Genesis, the literary Adam." By this, he seems to mean that their interpretations are less "literal" than many Christian theologians' views of Adam. The second non-negotiable is that "each author used Adam to his (or her) own purposes." None of the writers take a simplistic, purely historical view of Adam. The story of Adam is used to make specific theological points, thus emphasizing different aspects of Adam and ignoring others.

In the concluding chapter, McKnight tackles Paul's use of Adam, focusing the greatest attention on the key passage in Romans 5 that is often used to support the doctrine of original sin. He breaks his arguments down into five theses, the first three of which are the least controversial:

1. The Adam of Paul is the literary, genealogical, image-of-God Adam found in Genesis.
2. The Adam of Paul is the Adam of the Bible filtered through—both in agreement and in disagreement with—the Jewish interpretive tradition about Adam.
3. The Adam of Paul is the archetypal, moral Adam who is the archetype for both Israel and all humanity.

Thesis 4 strikes at the heart of the issue, and is the most controversial for the traditional Christian theology of original sin:

Adam and all his descendants are connected, but original sin understood as original guilt and damnation for all humans by birth is not found in Paul. In Jewish fashion, Paul points his accusing finger at humans for their sins. How there is continuity between Adam, all his descendants, and their sins and death is not stated by Paul.¹²

Although Seventh-day Adventist theology does not accept the Catholic doctrine of original sin in its entirety, and there is some confusion and disagreement on this, it is generally believed that we have inherited Adam's disposition to sin (but not his guilt).¹³ McKnight essentially dispenses with the entire concept of original sin, arguing that Paul's key statement used in support of this doctrine has been misinterpreted due to translation inaccuracies. In Romans 5:12, where the NIV translation has, "and in this way death came to

all people, *because* all sinned," Ambrosiaster and Augustine translated the word "because" (ἐφ' ᾧ, eph' hō) as "in whom," making the point that we have all sinned "in Adam." Even the Douay-Rheims translation retains the Augustinian translation: "and so death passed upon all men, in whom all have sinned." McKnight's conclusion from this is that Paul does not say that we sin because we have inherited a sinful nature from Adam, but rather that each of us continues to choose the path of sin ourselves. Dispensing with the doctrine of original sin then negates the need to see ourselves as biological, genetic descendants of Adam, because our tendency to sin is not in our genes, or at least not any genes we got from Adam.

Dispensing with original sin leads directly to McKnight's final thesis, "The Adam of Paul was not the

Pretending scientific facts are not true, to save what are perceived as essential Biblical truths, risks dispensing with half of God's truth in an attempt to save the other half, that now itself may be untrue.

historical Adam.”¹⁴ In some ways this is McKnight’s weakest thesis, but it is consistent with one way of looking at Paul’s use of Adam. Paul clearly uses Adam in a literary fashion and as an archetype for all humans, and especially for Israel. He even sees a genealogical link between Adam and Jesus, and given the scientific understanding of the time, this should be no surprise, but this genealogical link, again, does not imply inheritance of some sort of original sin and guilt. It also seems reasonable to assume, according to McKnight’s fourth thesis, that Paul is viewing Adam in a more *literary, genealogical* sense than an historical sense.

No doubt many theologians will take issue with McKnight’s conclusions, but as both authors of this book point out, if God is the author of both the natural world and the inspiration behind Biblical truth, some path to the reconciliation of the truths of both books must exist. Science, by its very nature, is open to objective, experimental investigation, and the more the natural world has been probed using the scientific method, the more evolutionary theory has been confirmed, including the evolution of humans. Pretending scientific facts are not true, to save what are perceived as essential Biblical truths, risks dispensing with half of God’s truth in an attempt to save the other half, that now itself may be untrue.

Just as believers in the day of Copernicus and Galileo had to face uncomfortable truths from the book of nature, so must we today. If we refuse this task, or prohibit those who wish to take it on, the authors suggest that we may alienate honest seekers from the church. What alternative does an honest seeker of truth in science have when told the things they have found to be true in nature are, by theological definition, contrary to scripture, and are therefore off limits for consideration?

As an exploration of the above question, the book ends with an afterword by Daniel Harrell, Senior Minister of the Colonial Church in Edina, Minnesota. Harrell recounts his experiences as a pastor being confronted by university students who have, for the first time, been confronted with the certainties of evolutionary theory and are in spiritual crisis. His solution is not to simply dismiss their fears and reaffirm the truth of the Bible (and the falsity of science), but to open a dialog, as painful as that may be. He contends that such open

dialogue is essential if we honestly want to know the truth. He concludes:

Christianity is not fantasy fiction or a fairy tale. Our faith in God who creates and redeems is grounded in the reality of things as they truly are rather than in how we wish and want them to be.¹⁵

Endnotes

1. R. H. Waterson, E. S. Lander and R. K. Wilson, “Initial sequence of the chimpanzee genome and comparison with the human genome,” *Nature* 437(7055), (2005): 69.
2. Y. Gilad, O. Man, S. Pääbo, and D. Lancet, “Human specific loss of olfactory receptor genes,” *Proceedings of the National Academy of Sciences* 100(6), (2003): 3324–3327.
3. D. Brawand, W. Wahli, and H. Kaessmann, “Loss of egg yolk genes in mammals and the origin of lactation and placentation,” *PLoS Biology* 6(3), (2008): e63.
4. S. Chen, Y. E. Zhang, and M. Long, “New genes in *Drosophila* quickly become essential,” *Science* 330(6011), (2010): 1682–1685.
5. S. Negoro, et al., “Plasmid-determined enzymatic degradation of nylon oligomers,” *Journal of Bacteriology* 155(1), (1983): 22–31. S. Ohno, “Birth of a unique enzyme from an alternative reading frame of the preexisted, internally repetitious coding sequence,” *Proceedings of the National Academy of Sciences* 81(8), (1984): 2421–2425.
6. J. Ruiz-Orera, et al., “Origins of de novo genes in human and chimpanzee,” *PLoS Genetics* 11(12), (2015): e1005721.
7. S. McKnight and D. R. Venema, *Adam and the Genome: Reading Scripture after Genetic Science* (Brazos Press, 2017), 90.
8. J. H. Walton, *The Lost World of Genesis One: Ancient Cosmology and the Origins Debate* (InterVarsity Press, 2010).
9. McKnight, and Venema, *Adam and the Genome*, 119.
10. *Ibid.*, 142.
11. *Ibid.*, 176–180.
12. *Ibid.*, 183.
13. G. Pfandl, “Some thoughts on original sin,” Shelf Document, Biblical Research Institute GC, 15. <https://adventistbiblicalresearch.org/materials/theology-salvation/some-thoughts-original-sin>.
14. McKnight and Venema, *Adam and the Genome*, 188.
15. *Ibid.*, 200.



BRYAN NESS has BS and MS degrees in biology from Walla Walla University, and a PhD in botany (plant molecular genetics) from Washington State University. He is currently a Professor of Biology at Pacific Union College (PUC) where he has been teaching for 30 years.