



Why Science Does Not Disprove God

Amir D. Aczel

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The renowned science writer, mathematician, and bestselling author of *Fermat's Last Theorem* masterfully refutes the overreaching claims the "New Atheists," providing millions of educated believers with a clear, engaging explanation of what science *really* says, how there's still much space for the Divine in the universe, and why faith in both God and empirical science are not mutually exclusive.

A highly publicized coterie of scientists and thinkers, including Richard Dawkins, the late Christopher Hitchens, and Lawrence Krauss, have vehemently contended that breakthroughs in modern science have disproven the existence of God, asserting that we must accept that the creation of the universe came out of nothing, that religion is evil, that evolution fully explains the dazzling complexity of life, and more. In this much-needed book, science journalist Amir Aczel profoundly disagrees and conclusively demonstrates that science has not, as yet, provided any definitive proof refuting the existence of God.

Why Science Does Not Disprove God is his brilliant and incisive analyses of the theories and findings of such titans as Albert Einstein, Roger Penrose, Alan Guth, and Charles Darwin, all of whose major breakthroughs leave open the possibility—and even the strong likelihood—of a Creator. Bolstering his argument, Aczel lucidly discourses on arcane aspects of physics to reveal how quantum theory, the anthropic principle, the fine-tuned dance of protons and quarks, the existence of anti-matter and the theory of parallel universes, also fail to disprove God.

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From Reader Review Why Science Does Not Disprove God for online ebook

Tim Bergmann says

I found this book pretty amazing. The only reason I didn't give it 5 stars was that the author at times went over my head and lost me. However, for most of the book, it made a lot of complicated issues in terms of the subject matter to be quite understandable.

Basically, all this book is is a basic attack on the Dawkins-esque types of the New Atheist movement that essentially overstep the science that they say they are proponent of and try to corral them in by showing where they are making mistakes.

Richard Dawkins is the main poster boy for this movement and has constantly written things that essentially in his mind prove that there is no God. However, what Amir Aczel is doing is a simple rebuttal of all of this. One thing to note here, he's not doing this to promote a young earth creationist theory, he just, IMO, trying to keep science real, and do what it does best. Which is find out facts about the natural world we live in and find out how things happened, how the world formed, etc... He's not promoting God in any way shape or form other than basically to say that the likelihood of all this universe and the life that exists on this planet goes so far beyond basic probability that it's mind0boggling.

I would definitely recommend this book to pretty much anyone with an open mind and willing to listen to all sides of a story or I guess theory might be a better word.

Tom says

Why Science Does Not Disprove God, written by Amir D. Aczel, who appears to be a respected scientist himself, does exactly what the title suggests. "I have not proved the existence of God in any shape or form, and this has obviously not been my purpose", writes Aczel in his last chapter. "What I aimed to do was to argue—convincingly, I hope—that science has not disproved the existence of God." Aczel does this by taking apart the arguments of a group of scientists and intellectuals he calls "New Atheists" and demonstrates that science and mathematics have not, and may never be able to, prove that there is no God or that there cannot be a God. He notes again in his last chapter, "As we have seen through our discussion of mathematics, physics, cosmology, biology, genetics, brain and cognitive science, and evolution, science has severe limitations when it comes to determining the existence of God. Mathematically, it has been proved definitively that there are always facts within any mathematical structure that will remain forever outside our understanding, outside our knowledge, outside our reach.... We are unable to explain even conceptually simply properties of physical constants needed for life to occur in the universe. This is a huge failing of science...." Ultimately, for me, Aczel's book demonstrates that there are cogent, rational, believable, reliable, and difficult to refute (he says impossible to refute) arguments against the ability of science and mathematics to prove that God does not or cannot exist.

This book is very accessible to the average, if well-educated, reader. I am a social scientist by training and vocation, having spent 34 years as a university professor training and teaching undergraduate, masters, and doctoral students and publishing dozens of scholarly articles. I struggled to understand some of his discussion of, for example, quantum physics, but he made it and other arguments as accessible as he could for his readers.

I am also a Believer in God, in my instance, a Christian with membership in The Church of Jesus Christ of Latter-day Saints, aka, Mormons. I stand with those scientists whom Aczel notes are “leading scientists” (I am certainly not one of them but can stand with them) and dispute the claim of the New Atheists that “the vast majority of prominent scientists are not religious.” My own religion is not anti-science. Indeed the current leader of my faith is a respected scientist who has noted at the dedication of a life-science building at a university owned and operated by the church that: “This university is committed to search for truth and teach the truth. All truth is part of the gospel of Jesus Christ. Whether truth comes from a scientific laboratory or by revelation from the Lord, it is all compatible.” He further noted that: “Conflict only arises from an incomplete knowledge of either science or religion, or both.” The New Atheists seem to imply, according to Aczel, that the very best scientists are not religious and therefore us common folk are foolish to adhere to any faith in a God. This demonstrates a lack of understanding in the diversity, richness, and depth of religions world-wide.

Whether a believer in God or a budding “New Atheist”, intellectually curious readers will find this book informative, thought-provoking, and highly readable.

Don Camp says

It is always interesting to see how a scientist defends faith. In Aczel's case he relies heavily on his area of expertise, mathematics. But mathematics is one of those areas few people who are not mathematicians can follow. Aczel does a fairly good job explaining the what mathematics contributes to the question of the existence of God, but most readers will need to take his word for it.

When Aczel turns to other issues such as biology and cosmology, his observations are not particularly new. But the point he repeatedly makes is that those who use science to disprove God, as does Richard Dawkins, both misunderstand the science they use and misuse the science they know.

One point Aczel does make is that the anthropic principle is more significant in the debate than many assume. It virtually eliminates the possibility of natural origins - unless infinity is invoked. But that is another topic and one Aczel does a great job of explaining.

Julie Davis says

Short version: I want to believe Aczel's arguments. However, some of the inaccuracies in nonscientific areas made me wonder if he was trustworthy in the science.

Full Review

THE GOOD

The purpose of this book is to defend the integrity of science.

Amir d. Aczel, mathematician and science journalist, was on stage listening to prominent biologist and atheist Richard Dawkins when he decided he'd had enough of hearing atheists misuse mathematics and science for their own agenda. The result is this book which examines the New Atheists' claims that scientific progress has proven God does not exist.

Aczel devotes chapters to quantum theory, string theory, probability, chaos theory, and much more. Each time, he examines the New Atheists' claim, explains the scientific theory involved, and then shows where the logic of atheists' claims falls short. In so doing, Aczel quotes other scientists, some believers and some what we might call "friendly" atheists, to show that the loud claims of the New Atheists are far from being universally acclaimed by the scientific community.

In each case, he logically shows that a zealously pursued agenda is sullyng the beauty of pure scientific truth.

I especially liked the way that Aczel didn't strive to "recruit" scientists to his cause. He simply would point out when a fair minded scientist was leaving open the possibility that science didn't have every fact locked down and God locked out. This was often really helpful in showing the methods of New Atheist scientists who were determinedly tweaking interpretations to support their own agenda.

THE BAD

"But wait," I can hear you thinking. "Anyone who punches holes in the reasoning of so many atheists in order to stand up for the idea of God must have a vested interest. Right? Surely he's Christian."

Good news, everyone!

Aczel is so far from being a Christian or even a theist, as far as I can tell, that he just tosses out shallow sound-bytes of pop-history "everyone knows" about religion and, indeed, European history. A lot of the time it's unspecific, inaccurate, and pounds the church whenever possible for being closed minded. So no need to worry that he's on our side and just sticking it to the (science) man for the sake of his faith.

I'm not gonna lie. If you know about religion and history, you are going to do some serious eye rolling. And possibly have to struggle to not get insulted over some of Aczel's unthinking simplifications.

In many ways I enjoyed Aczel's early chapters about the development of science and religion. His comments about the rise of nature cults as people noticed more cause and effect prompted me to think of God using that way to speak to the earliest people through his creation, nature. I liked that image. However, I often struggled to give Aczel the benefit of the doubt, such as when he linked the Virgin Mary to fertility goddess worship. Perhaps, I thought, he was completely leaning on anthropological thinking in these instances.

My assumption was ruined by the next paragraph when he said that Catholic saints "resemble the Greek and Roman pantheons—each saint with powers and a specialty similar to a god." A good anthropologist would know that is not how Catholic saints were viewed in the past or present. (I can't help that we all seem to know some random Catholic lady who treats St. Francis just the way Aczel mentions. That lady? She's in the same state as Richard Dawkins. Uninformed. I expect more from a book like this.)

I also expect more than this unthinking historical gloss from a book like this.

When this great culture [Greek civilization] declined and the Western world sank into the Dark Ages, Scripture assumed the role of the explanation of truth, and freethinking was shunned. This mode of thought continued through the late Middle Ages, when except for the development of crude notions about medicine ... there were few attempts to pursue science. Deviations from established belief were not tolerated in a culture dominated by the church and Catholic Monarchs. Simply put, the "order of things" was not up for debate.

Right. Albert the Great who helped develop experimental science, Roger Bacon (a friar) who helped develop

the empirical scientific method, all those Catholic universities and scholars and scientists. Pfft. Forget about them!

Historians like Paul Johnson, Regine Pernoud, and others have pointed out lately that what "everybody knows" about the Renaissance, the Dark Ages and the Middle ages is often quite wrong. When only the Renaissance guys are left to define how things fall out, guess who's going to come out smelling like roses? In fact, this is well enough known that pop culture sites like Cracked have been telling us about it (Renaissance, Middle Ages).

THE QUESTION

And that brings us to the bad news. With such unthinking inaccuracies, can we trust the science?

That is a question only other unbiased scientists can answer. And I'd love to hear from some because, I admit, I wanna believe.

Aczel makes a great case for shallow, inaccurate, and tweaked science being used by the New Atheists. I didn't get the feeling that Aczel is out to get religion. I just felt that he didn't care enough about the religious side of the story to look any deeper. I really wish that someone, anyone, who cared about religion and history had taken a look at this book before it went to press.

I am trusting that Aczel's stated goal of restoring scientific integrity is one that he cares passionately enough about to treat these subjects with integrity about details. After all, his peers are going to be zinging him about this book if they don't agree.

On that basis, I am recommending it as a way to understand the false claims that are being made by people with atheist agendas. As a course in logic, it is superb and that is also a good reason to read it.

NOTE: This was a free review book. I think we can all agree I didn't let that fact influence my review.

Paul says

This is a very well written and researched book that gave me more background on quantum physics, as well as many other aspects of science, than I ever imagined (and truthfully, some went over my head). As the author points out, this book wasn't written to prove there IS a God, but rather why science does not disprove an existence of God. It reminded me of a movie from 2008 called "Expelled: No Intelligence Allowed" in which scientists all over the world were blackballed for discussing the possibility of intelligent design. I was alarmed by that notion and didn't see why it was such a big deal. And I always wondered how now more than ever we have such hatred spewed by the likes of people like Richard Dawkins who seem hellbent on proving there is no God. I was comforted in learning that I wasn't imagining all this hatred, and that Dawkins' followers (labeled as the New Atheists) continue to grow. That's why a book like this is so important and geared towards people who truly have the open minds.

Overall, the book is not overly long and can be quite an entertaining read. Aczel does a more than adequate job in writing about complex scientific theories and making them understandable to the common man. My only criticism as some have pointed out in their reviews is the author might not have the deepest understanding of theology being a mathematician. But I didn't see the unnecessary jabs that others mentioned. Quite frankly, when you are taking the approach of showing why science does not disprove God,

than science should be at the forefront, which it most certainly is (I found the explanation of set theory in mathematics and how it applies to this question particularly interesting). I'll end with the author's last 3 sentences in the book: "But the pursuit of truth should not be driven by zealous agenda. Nor should it overreach and speak with righteous authority where it's on unsolid ground. That's not science - and let's not allow those who falsely invoke its name to diminish us."

Highly recommend!

Justin Tapp says

This book is basically about the unacknowledged cognitive biases of various "New Atheists," and what basic physical processes are unknown to science or perhaps cannot be known. My review can't really do the book justice, so I recommend reading it yourself.

Commenting on a book like this tends to draw a lot of troll comments, so let me start with other books I've reviewed that were either cited by the author or helpful in understanding this book:

Black Holes and Baby Universes (Stephen Hawking)

The Universe in a Nutshell (Hawking)

The Grand Design (Hawking)

The Hidden Reality (Brian Greene)

The Fabric of the Cosmos (Greene)

The Elegant Universe (Greene)

The God Delusion (Richard Dawkins)

Letter to a Christian Nation (Sam Harris)

Arrival (Andreas Wagner)

The Misbehavior of Markets (Benoit Mandelbrot, polymath and apparently friends with Aczel. Chaos theory.)

Not cited but helpful:

The Trouble with Physics (Lee Smolin, arguments against the cult of string theory from a quantum loop gravity physicist.)

The Accidental Universe (Alan Lightman, physicist armchair philosopher who is critical of Hawkins but has his own logical fallacies.)

Randomness in Evolution (John Tyler Bonner, slime mold biologist who argues natural selection is far less important than randomness.)

First Life (David Deamer, mix of astrophysics and biology)

Can a Darwinian be a Christian? (Michael Ruse, philosopher asking questions of consciousness and such.)

I Don't Believe in Atheists (Chris Hedges, also debated Hitchens and Harris; familiar with Aczel's arguments.)

The Quest for Meaning (Great Courses lectures by Dr. Robert H. Kane based on his book The Significance of Free Will. A history of philosophy that also asks what "values" are and has a response to postmodernists who argue nothing has objective value.)

The Reason for God (Tim Keller)

Reasonable Faith (William Lane Craig)

Aczel has a Masters in Mathematics with a PhD in Statistics and an interest in physics, having written books on the discovery of the Higgs Boson among other things. He can explain every issue below much more

lucidly than I can, but the book is addressed to the same lay audience that the New Atheists write to. Aczel debated Dawkins and found his misuse of mathematics and lack of training in logic disturbing. He's also dialogued with Andreas Wagner and engaged in a TV interview review of one of Brian Greene's books, which went sour when Greene got evasive with his answers on string theory and a multiverse or would not concede Aczel's point. Aczel has similar problems with Harris' and Lawrence Krauss' books, finding outright errors. Krauss boasts that quantum mechanics gives the reason for the universe's existence but Aczel shows that quantum mechanics "says no such thing." He notes Richard Feynman never claimed such a thing (and claimed those who claim to understand quantum mechanics do not understand quantum mechanics).

On the origins of the universe and string theory, Greene, Hawking, and others fall back on "well, the math says so, so I trust the math." (Aczel's work was written before Greene's later work, *The Hidden Reality*, positing that we are probably just zeros and ones living in a video game like *The Sims*, or maybe a video game inside another video game, infinite regression.) These cosmologists put a lot of faith in ideas that are impossible to test and therefore, by definition, not actually science. (Hawking, for example, in *The Universe in a Nutshell* admits it would take a Hadron collider larger than the entire universe to test aspects of string theory.)

What bothers Aczel is that Krauss and Dawkins can believe we are all just randomly assembled molecules yet make claims about truth and morality. If we are just randomly assembled particles that will again be scattered, how can a Dawkins or Krauss say it's wrong if I scattered his molecules before the synapses in his brain might personally desire them to be scattered. Philosophy matters (see Dr. Kane's lecture series above).

The author, born in Israel, pivots to specific issues dealing with religious artifacts, giving a brief history of religion. He seems to be of no particular religious bent himself, but rather argues that religion has been a central part of man's history and a motivating factor for examining and explaining surroundings. He takes issue with Hitchens' claim that there is "no proof" that any of the stories of the Bible happened, walking through a list of plenty of archaeological finds from Old and New Testaments ranging from Jericho to Pontius Pilate, showing that these historical places and people were discovered by archaeologists after after skeptics had long claimed they were fiction.

Aczel gives examples of how Krauss and Dawkins quote scientists like Gould and Einstein's thoughts about the possibility of a God out of context in an attempt to reinterpret them as more militantly atheist than the context could possibly allow. They apparently feel some obligation to be apologists for previous scientists who were not militant atheists. He gives little time to the idea of a multiverse, noting that physics who do real science believe in a Big Bang, a beginning. The multiverse cannot be tested and by the definition of science Krauss and Dawkins state their belief in must be relegated to the metaphysical. He is on good grounds with other physicists in this regard.

The author also makes important points about uncertainty, which Dawkins seems to believe can't exist. Science is a constant process of hypothesizing and testing. There are a lot of facts taught about the universe in the 1950s that are no longer believed true today, and some of what we "know" will also be proven. Hence, we all need to be epistemologically humble.

Aczel is also friends with Benoit Mandelbrot, the father of fractal geometry, and discusses chaos theory; small changes can have very far-reaching consequences that are difficult to predict. To quote Sardar and Abrams, chaos is: "the occurrence of aperiodic, apparently random events in a deterministic system. In chaos there is order and in order there lies chaos. The two are more interconnected than we ever thought before." Chaos entails uncertainty. A process like evolution or the expansion of the universe might appear deterministic, but it involves events that cannot be predicted and feed back on the deterministic process.

Further, Aczel goes into the anthropic principal-- the universe exists the way it does because we are here and able to observe it. He looks at the various cosmological constants for our universe for which no one can explain why they are fine-tuned as they are. The multiverse believer will simply say this universe is one of an infinite number and we just happen to exist such as in order to see it. But, again, the multiverse is of the realm of metaphysics and not actual science. One ignores the fine-tuning argument with some difficulty.

As a mathematician, the author is disturbed by the flippant use of infinity by various parties arguing against God. Once you inject infinity into an equation, you can prove whatever you want. Similarly, non-mathematicians like Dawkins use the word "nothing," as in "the universe came from nothing" in a way that deceptively does not mean the null set-- the state of absolute nothingness. Rather, they mean a state where a certain level of radiation exists or some other conditions. This is also problematic, it allows them to dodge the question of how something could possibly come from nothing-- they don't mean the same "nothing" that a philosopher would. Anselm solved the problem for the theist-- God is the ultimate necessary being. Aczel also critiques Dawkins use of stats, giving concrete examples from Dawkins books in which he makes elementary errors.

Aczel turns to Darwin, the theory of natural selection, and the Darwinism purported by many New Atheists. Evolution can explain processes that we see but, unlike theories in physics, can make no predictions and thus is an incomplete theory. Scientists still lack a mechanism to explain why and how evolution occurs. For example, how and when did cells realize that light and sound waves contained valuable information, such that they developed mechanisms to receive and process that information? (If Darwinist John Tyler Bonner is correct and it has much more to do with randomness than most Darwinists give it credit for, then imagine the odds that you can see, hear, and taste today.) I read an article last week that scientists have discovered plants - non-sentient beings-- are able to sense vibrations of water and this is why they grow their roots to and through pipes.

How did those cells get lucky enough to sense this, store that trait in their DNA and pass it to ancestors? Aczel is no believer in the young earth of Ken Ham, but seems to argue that these lucky processes evolved us to today in a much shorter time than would seem possible. (Remember, the metaphysical idea that we're in just one of an infinite multiverses has no proof and no ability to be tested. Besides, it leads back to the problem of the New Atheists defining morality.)

One of the final problems Aczel examines is the idea of consciousness. What is it, where does it come from? What are the implications for artificial intelligence? I read an article last month about how leading scientists still don't understand consciousness and how the brain is still able to do some processes better than the most advanced AI. A computer program consists of algorithms and choices based on probability. Consciousness, however, involves senses, emotions, chemical reactions, etc. Every book I've seen on the human mind has an author marveling at how much scientists still don't know. Aczel basically adds reasons people should be skeptical of the promise of artificial intelligence.

A good scientist recognizes that "some truths are unattainable." Aczel's book makes foolish all those who preach that they alone are not fools.

The book is better than my review. 4 stars.

Note, in reviewing this book I discovered the NY Times obituary for Aczel from 2015.

Dwayne Johnston says

What I like best about this book is how Amir D. Aczel makes his premise using what science has the ability to tell us, unlike other authors who make their case apologetically, or using philosophy.

Overall I think it does a good job of showing how the New Atheist movement is being rather religious itself much like the young earth creationists by misusing or representing what science is telling us to forward their own religious and utopian dreams.

For myself I also like how he only summarizes the science to do with, quantum theory, string theory, probability, and chaos theory etc., because so many other books I've read on these subjects have gone over each thoroughly making the book a much more concise read. This may be a negative about the book for those who have not been exposed to the science beforehand.

Also, if you believe in a young earth, or hold to a strictly literal and specific interpretation of scripture then you probably won't like some of the implications of this book either.

I also like the fact it shows you can be an intelligent intellectual person and still have a reasonable scientific basis for a religious element in your life.

Todd Stockslager says

Review title: What science isn't

Aczel sets and completes a simple challenge in this book well described by his title. He doesn't try to prove that God exists, or that science and religion are different and non-intersecting but equally valuable spheres of knowledge. He simply shows that based on current science and mathematical principles God can not be proven to be non-existent.

While written in direct and acknowledged response to Richard Dawkins and other "New Atheists", Aczel doesn't craft his argument around point by point refutation of their arguments that God is not only dead but never existed. Rather he goes to the source--the scientific and mathematical principles of cosmology, infinity, anthropism, and quantum physics to show how these leading edge and sometimes bizarre and puzzling theories and equations do not disprove God.

Notice his use of the phrase "do not": while the reader might conclude that these theories "can not" or "never will" disprove God, Aczel does not use those phrases. While I suspect he might lean in that direction in the near term, he lets the science and math speak for itself, and there are some pretty powerful theoretical limits to what these tools of the human mind "can know" today.

He is no friend of Christianity or the polar opposites and special targets of Dawkins and crew, creationists, but neither is he dismissive of any faith or belief in God as a creator or intelligent force in, outside, or pre-existent of the universe. He also doesn't use the "separate but equal" argument, which I have always found demeaning to both religion and science and as stupid and despicable as the same argument applied to civil rights.

In fact, his main line of argument reminds me of Paul's early declaration of the scientific evidence in favor of God (Romans 1:20):

For since the creation of the world His invisible attributes, His eternal power and divine nature, have been clearly seen, being understood through what has been made, so that they are without excuse.

How much of God and creation remain--despite man's vast knowledge and discovery about the world from the quark to the universe--invisible, eternal, divine, and unknown, even when clearly seen. By showing us the invisible, eternal, and divine outside the reaches of science, Aczel may help us more clearly see.

Lino's Version says

Why Science Does Not Disprove God

Amir D. Aczel

2014

The renowned science writer, mathematician, and bestselling author of Fermat's Last Theorem masterfully refutes the overreaching claims the "New Atheists," providing millions of educated believers with a clear, engaging explanation of what science really says, how there's still much space for the Divine in the universe, and why faith in both God and empirical science are not mutually exclusive.

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<https://www.amazon.ca/Why-Science-Doe...>

A system cannot prove (or disprove) something from outside the system, however it may raise questions of how did the system got there?

Page 1: The thesis of this book: that science has not provided any proof of the existence of a creator of some kind must necessarily be false.

2: Richard Feynman: "If you think you understand quantum mechanics, then you don't understand quantum mechanics"

3: My book on Peking Man, The Jesuit and the Skull....

5: Science is about the objective pursuit of truth and we should be very skeptical when "science" is invoked to further someone's socio cultural agenda

The purpose of this book is to defend the integrity of science.

17: Greek philosopher Epicurus (341-270 BC) believed that life came about by chance and that there is no

supreme being....

His contemporary Democritus, who proposed the first hypothesis that the universe is made of something like atoms...

18: Monarchs and church, atheists were often persecuted...

Giordano Bruno was burned to death in Rome in 1600 after Inquisition found him guilty of heresy for believing that the sun was a star and that the universe contained other civilizations.

20: Scripture was never meant to be read literally. The original Hebrew text of the Old Testament and the Greek of the New Testament are elegantly poetic.

21: The Catholic Church, for one, historically adopted such literalism and unyieldingly defended it in the face of scientific discoveries and theories about the movement of the Earth, famously persecuting Galileo and many others for maintaining the nonbiblical heliocentric view.

EN: Books, Catholic, Orthodox, Islam...resist Change....

23: These deities were abstractions of what very early humans had learned about the universe surrounding them...Venus figurines...

27: The rise of agriculture on Earth is a true marvel...in at least two separate locations, Jordan Valley in the Middle East and the coast of Ecuador around 11500 years ago.

29: ...people learning from nature, which is something that can well be identified as a rudimentary kind of science.

38: Early Christians adopted the image of a six pointed star, representing the joining together of Jesus's Greek initials, I and X. It was this image that later became the Star of David.

41: St. Augustine of Hippo (AD 354-430)...worried about the question of what God was doing before he created the universe. Time itself was created when God made the universe....

42: Collyridian sect (4th C) revered Mary as the mother goddess of antiquity...

48: And already in the second century AD the Talmudic sage Hillel the Elder famously summarized the message of the Old Testament in one sentence: "What is hateful to you, do not do to your fellow man; this is the entire Torah, the rest is commentary."

50: The biblical Abraham was born in the city of Ur in Mesopotamia....

60: Dead Sea scrolls date from the 3rd C BC to the first C. AD...

66: Ptolemaic model works....but it is wrong

67: Occam's razor, the simplest explanation of a phenomenon is probably the correct one.

68: 1543, Copernicus published landmark book: On the Revolutions of the Celestial Spheres.

72: EN: First memories? Or First Dummies

Offering opinions through the mouth of Simplicius the simpleton in the dialogue... (Did Galileo write the first Dummies book?)

Galileo: "The book of nature is written in the language of mathematics"

76: Pascal's wager:

77: 1637, Descartes published, The Discourse on the Method....

78: 1661, Leibniz, De Principio Individui which dealt with the ideas of individuals and totality.

80: Isaac Newton (1642-1727): groundbreaking science and contemplating the most difficult religious ideas.

EN: How long were 6 days? Were they of equal length or were they just as long as they needed to be?

89: Leon Foucault to prove that the earth moved...Foucault's pendulum

93: for example the order of appearance of living things on the earth described in Genesis is not in disagreement with evolution

94: Chapter 5: Einstein, god and the Big Bang

104: But also, everyone who is seriously involved in the pursuit of science becomes convinced that some spirit is manifest in the laws of the universe, one that is vastly superior to that of man. ~ A. Einstein

123: $2 + 2 + 4 * \text{sort of } 2 \text{ what} + 2 \text{ what?}$ Where are they?

125: Chapter 7: The Universe from Nothing deception

EN: Does P use energy?, therefore idea or energy not nothing...4 elements plus spirit....

126: Pair of particles – yin/yang duality....
138: Chapter 8: And on the eighth day, God created the Multiverse
148: Chapter 9: Mathematics, probability and God
149: Mathematics is not physics.
152: Roger Penrose's three worlds

- The physical universe
- The Human mind
- Mathematics

Science has limitations...

166: You can prove almost anything, if you assume an infinity of other universes....
167: saying monkey can type Hamlet

- In which world?
- Would it be useful here?
- Hamlet is in the dictionary
- The genius is in putting it in order, now, on a timely, usable basis

169: Chapter 10: Catastrophes, Chaos and the limits of Human knowledge
174: EN: Life follows Life

Chapter 11: Between God and the Anthropic principle
EN: Rounding error?
EN: A day for god is 24 hours?
EN: 190: The Gods Themselves – Asimov
Chapter 12: The Limits of Evolution
Chapter 13: Art, Symbolic Thinking and the Invisible Boundary
Chapter 14: Engaging the Infinite
226: Barber of Seville paradox: The barber of Seville is known for shaving all the men in the city who do not shave themselves. So does the barber shave himself?
Chapter 15: Conclusion: Why the “Scientific” argument for Atheism Fails
244: Why is the fine structure constant – which governs all the electromagnetic interactions in the universe – equal to about 1/137?
248: Evolution can tell us how animals and species move through time – how creatures advance up the ladder of life – but it does not explain the immensely improbable appearance of life and intelligence and consciousness

Dhanaraj Rajan says

I had always desired that someone wrote such a book - a response to the New Atheists.

I had read some of the books by New Atheists (Richard Dawkins, Christopher Hitchens, Sam Harris, etc). To tell you the truth I was mostly offended by their lopsided arguments against God. Their arguments were mostly against organized religions. Organized religions are human institutions and naturally they cannot escape human errors and vices. But can we claim non existence of God basing our arguments on such aberrant happenings? Certainly NO.

The problem with New Atheists was that they claimed the opposite and even had taken recourse to Science to ratify their claim. I was not fully trained in science. So it was here I felt the hump.

But Amir Aczel, a physicist and a mathematician in writing this book has done a great service to me and people like me. He categorically proves that science has not disproved the existence of God. His style is very engaging and provocative. His strength is in narrating the great scientific developments in a language understandable for any lay reader. His arguments are from all fields of science - physics, cosmology, natural science (evolution), cognitive science, mathematics, and logic.

Here is the conclusion by A. Aczel:

And religions have their flaws, as all human institutions do. But God - a power well outside our ability to comprehend, transcending the creation of the universe we see around us - may well exist, and science has not, and will not, disprove it.

In so many ways, the same impulse to know the world and our place in it is at the roots of both science and spirituality. Both are attempts to illuminate the mysteries of our world and expand our vision of the greater whole.

Don says

Distinguished mathematician pulls the science rug out from under New Atheists.

Professor gives New Atheists a failing grade in science.

Science historian sends New Atheists back to the drawing board.

I can't decide which sentence would make the best lead for this review. In this book, Aczel, the math PH.D. and prolific science author, takes on New Atheists such as Richard Dawkins, Christopher Hitchens and Lawrence Krauss to task for misusing science to advance their "God is not real" message.

Aczel's position is basically, "I know science. Science is a friend of mine. You're no scientist." He writes chapters on archaeology, the Big Bang, quantum physics, the pre-Big Bang "nothingness," the multiverse, probability, chaos, the anthropic principle (he's not a fan), evolution, consciousness, and infinity. In every case Aczel finds that the New Atheists misunderstand or misapply science to push their anti-God agenda. Aczel's position on God's existence is agnostic. He does not take a position that science proves the absolute reality of God. But following the rules of science he must admit that science does show that there could be a God.

Some of my favorite passages from the book include the following . . .

"So while it is ignorant and unscientific to fail to recognize that evolution is a powerful principle that often explains what we see in the biological sphere, it is equally unjustified to assume that evolution is a perfect theory that explains everything. A theory that cannot produce excellent predictions of future outcomes and phenomena is not a complete theory."

"Science is dispassionate, rational, a logical search for facts and truths about nature and the universe around us. It is the pursuit of the laws of nature, with no agendas to push for any philosophy about who created these laws. But the New Atheists, who claim to speak for science, are more like religious evangelists bent on converting us to their narrow point of view that God does not exist."

"This notion of emergence is one that has been addressed in philosophy, but never explained well by science. We don't know how a universe emerged. We don't know how from chaos and fuzziness and unworldly behavior of the quantum, the structured universe of macro objects we see around us came about, with its causality, locality, and definiteness -- none of which are characteristics of the quantum realm. We don't know how self-replicating life emerged from inanimate objects. And we don't know how and why and at exactly what point in evolution human consciousness became a reality. The inexplicability of such emergent phenomena is the reason why we cannot disprove the idea of some creative power behind everything we experience around us -- at least not at our present state of knowledge."

"We think of the universe as governed by strict logical laws, but in fact quantum theory, and ideas in pure mathematics, are not based only on logic. (German genius mathematician Georg) Cantor's work was governed by psychology almost as much as logic. It is here that we see the human mind transcending the rational and the straightforward. Our minds are based on essentials that go beyond the mechanistic and the evolutionary: they have something extra that allows them to do amazing things that computers, and dogs, and monkeys, cannot. I believe that this mysterious extra element inside our brains -- such as the ability Cantor possessed for dealing with the immense concept of infinity -- is related to the divine."

"We don't fully understand what space is made of, and what the elements of physical space are and how they are stacked together. We don't know the level of infinity of the real line and whether the mathematical line has the properties of physical space. We don't know how space and time were created. We don't know what time really is. We don't know what caused the Big Bang. And we don't know who or what created God. What we do know is that the universe did not come out of the void all by itself: something preceded the Big Bang, and that "something" is unreachable to our science and may well remain so forever. We know that by strange and mysterious mechanism all the constants of nature turned out to be exactly as they need to be for life to emerge, and the alternatives to a divine control that effected these incredibly unlikely conditions are no more likely than is the existence of God."

Ci says

This book stands out by its clearly stated mandate: to show that science has Not proved the non-existence of God. In doing so, the author traced the contours of major fields in science namely physics, mathematics, statistics, neuroscience, archeology, anthropology and biology, to demonstrate that the erroneous acclaims from the New Atheist camp for "God does not exist". Of course, the first question is what is God. This is where the major ground zero problem. The God in Scripture and Churches is also overlapped with the Deistic God of Spinoza or Einstein, or a generalized form of spiritual entity.

Science has done much to clean out the old musty attic of human's religious experience from the old texts and antiquated practices. Scientists have pushed the frontier of human knowledge to an extent that is unimaginable by our ancestors. Yet, in modern times, the question of God largely lies in the human consciousness of sacredness -- sense of morality, justice, beauty and the particularly felt "agape" love. Of all the natural and social science combined, we could not explain the frequent if not all-present experience of our consciousness in the moments of sacredness, then we must agree with the author's premise -- there is no proof that God exist, yet there is no proof to God's non-existence.

This book is easy to read, sufficient details to flesh out his point. His writing style is more journalistic than scholarly.

Aditya Nayak says

I read *The God Delusion* almost immediately after having finished this book. Pretty much all that this author has to say against Richard Dawkins' writings are just re-questionings of what Dawkins has already tackled - either indisputably, or satisfactorily enough, or has only inserted as one among many possible explanations to something and has admitted to not being qualified enough to answer it himself.

Although, admittedly, the questions posed are very interesting, thought-provoking and undeniably challenging.

The problem with this book is the 'God' it addresses and defends is the deist God. And the 'God' that the atheists refute is the religious Big Brother version, the old sky-daddy with a morbid obsession over what we humans do naked. This book too explicitly refutes that notion of God, which is what the New Atheism movement is predominantly doing. So this book, in effect, is defending what nobody is attacking, i.e the deist God, or the germ of creation... the origin of the universe, if you will.

The worst feature of this book is the recurring 'hey guys, look, this man was an awfully clever scientist who made awfully smart discoveries in science and was *also religious!*... gee, ain't that great?' parts that follow after the author talks about a scientist's contributions to science.

It was an interesting read, nonetheless. Shame, that an interesting account of the progress of scientific thinking and physics had to be adulterated with smatterings of apologist nonsense.

Collin Duncan says

After reading the majority of this incredibly easy read in a single day (I have about two chapters left) I feel as though the best way to describe this book in a phrase is "hindsight's 20/20." I found the book to be far more compelling than I originally anticipated, and while I concur with the general premise, the author does little to convince anyone of it. The arguments within really rely upon a fundamental fallacy that by correlating historical examples with modern phenomenon, we can validate theories. A stunning example of this rather simple-minded fallacy is when the author compares early human's basic appeals to spiritual forces with the modern knowledge of the forces of physics (such as the weak force). While it may be comforting to make this claim, it is simply an impossibility that is founded only on our modern knowledge and ability to look into the past. These correlations which pop up throughout the book prove nothing and only show the author's flawed attempt to reconcile correlation with causation--a common mistake, granted, but I expected more from someone with so much academic clout.

The book left me wanting more. Every chapter was filled with quotes and detailed quips that showed the author's incredible ability to draw upon a pool of well developed knowledge. However, he only wades into shallow waters, never venturing to flesh out his claims. Consequently, he often falls prey to the exact same things he criticizes. He opines deeply, overwhelming with facts, statistics, and data only to conclude little more than rushed opinions pulled from seemingly nowhere. His logical progression is weak, and although his foundational data often seems grounded, his conclusions aren't. I was often waiting for stunning conclusions and new concepts, but was let down every time as he trailed off into subtle nods and winks toward religious

fantasies as if he were leading us down a mystery novella.

At least one chapter dealing with archeology and the Bible is an entire straw man argument. He claims to be countering atheistic arguments disputing the archeological evidence for Biblical stories, but he never actually refutes the exact atheistic arguments that are commonly made. Instead, he cites historical and archeological facts that no one beyond a few extremists has ever disputed. It's well known that the various nations and factions and kings of the Bible were quite real. Atheists often take no issue here; rather the dispute deals more with events such as the "great flood" or Herod's "slaughter of the innocents": There is no evidence for these (and many other cornerstone) events. Saying that because David was a real king with an actual legacy the Bible is therefore true is false; all this does is show that the various authors of the Bible had knowledge of the cultures about which they wrote. Anyone can write nonsense fiction incorporating real societies and celebrities, and doing so adds no truth to the narrative. Aside from admonishing in various places literalists, the author never once directly counters these atheistic arguments about the historical veracity of events within the Bible.

Building upon that, I wish Aczel would stick to what he knows best: Science. The history here is fine for basic background, but he draws upon his flawed understanding of it far too often for a book about science. Claiming that science does not disprove god because historically, it grew out of religious studies serves no purpose.

All in all, I was impressed with the scope, but disappointed in the depth. This is a valiant attempt, but not one that will stand in court. It does little to forward this argument beyond perhaps raising it to a more level headed plane...which, come to think of it, probably isn't such a failure after all.

Brian Clegg says

There have been a good few attempts to counter Richard Dawkins' best selling *The God Delusion*, but I think this is one of the more interesting, as it's written by a mathematician and physicist turned science writer, who certainly knows a lot more about physics than Dawkins.

What Amir Aczel sets out to do is to look at the claims made by the likes of Dawkins which attempt to use scientific arguments to 'disprove' the existence of God and to counter those, and on the whole he is quite successful. I ought to stress what he doesn't do - and could never do - is in any sense 'prove' the existence of God. As Aczel says towards the end 'In this book I have not proved the existence of God in any shape or form, and this has obviously not been my purpose. What I aimed to do was to argue - convincingly, I hope - that science has not disproved the existence of God.'

Aczel approaches this task with a lot more science than I recall Dawkins using. Along the way we get summaries of quantum theory, cosmology, evolution, the mathematics of infinity and more, all used to show the flaws in the 'science disproves God' argument. These have to be fairly rapid summaries - there are plenty of better books covering each subject in detail - but might be helpful to give context to those who aren't familiar with the scientific theories that get thrown around in these kind of arguments.

There's a degree of subjectivity, inevitably, but for me Aczel makes three quite strong hits. He shows the weakness of the anthropic principle as a way of deriving anything (something most scientists are perfectly well aware of), he makes the multiverse interpretation of quantum theory as a way to explain the strange

'tuned' nature of our universe look a bit silly, and most interestingly for me he demolishes the negative aspect of the 'God of the gaps' argument.

This is essentially a suggestion that the tendency of non-fundamentalist religious believers to accept scientific theories that contradict early religious teaching results in God being just responsible for 'the gaps' left behind by the science, making the God concept more and more pointless. Although Aczel doesn't use this terminology, I think he nicely demonstrates that the current position is more 'science of the gaps' - almost all the big questions like how could a universe start from nothing, why do the charges of the electron and quarks balance out the way they do, how did life start, what is consciousness and how did it emerge are still left to be answered. Science does a wonderful job, but frankly we've only managed the easy bits.

So, quite an interesting book that successfully demonstrates the emptiness of much of Dawkins' argument. However, on the down side, it isn't as readable as a Dawkins book, some of the history of science is too simplistic (we get the good old myth that Giordano Bruno was burned to death 'for believing that the sun was a star and that the universe contained other civilisations' which is utter tosh), and it suffers from being a negative book, constantly attacking Dawkins et al, which gets a bit tedious after a while.

I have always argued that the only scientific viewpoint on God is agnosticism rather than atheism, as atheism espouses a belief without evidence, but in the end that's all this book can and does deliver. Science doesn't disprove God - case closed. So what it does in its own right is limited, but I do think it is useful in highlighting the way the opposite attempts from the 'new atheists', as typified by Dawkins, to show that science can somehow manage this impossible feat is flawed and hollow.
