

The Devils Delusion

Atheism and its Scientific Pretensions

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نبذة مختصرة عن الكتاب:

«ديفيد بيرلنسكي»، عالم رياضيات، فيلسوف، يهودي، علماني، ألف هذا الكتاب ردًا على الادّعاءات التي تقول بأنّ العلم يُثبت صحّة الإلحاد، والتي تُروّج من قِبَل «ريتشارد دوكينز»، و«فيكتور ستينجر» و«سام هاريس» و«دانيال دانيت» و«كريستوفر هيتشنز» وغيرهم، ويجب الإشارة أنّ الشيخ «عبد الله الشهري» حفظه الله قام بترجمة الكتاب، وهو من إصدارات مركز دلائل، بعنوان: «وهم الشيطان، الإلحاد ومزاعمه العلمية».

الكاتب يطرح أسئلة كثيرة، ويُحاول إرشاد القارئ لأفضل طريقة تعامل مع هذه الأسئلة من الناحية العقلية والمنطقية.

«بيرلنسكي» يُخاطب في كتابه الفئة الذين يظنون أنّ العلم قد حسم الأمر فيما يخص بطلان الدّين! ويبيّن أنّ العلم لا يستطيع أبدًا نفي صحّة الدّين، ويؤكّد على أنّ العلم لا يستطيع الإجابة نوعية أسئلة كثيرة يُجيب عنها الدّين، وهو في الكتاب يرّد على الادعاء الإلحادي الذي يقول: إنّ العلم يتعارض مع الدّين، ولا يُمكنهما أن يكونا حقًا معًا، وعلينا أن نتخلّص من الباطل، ويُقرّرون في النّهاية أنّ العلم هو الحقّ وأنّ الدّين هو الباطل!

عيب الكتاب الوحيد هو عدم الإشارة إلى أيّ مراجع على الإطلاق، وهذا لا يعني أنّه لا يقتبس من بعض الكتب، بل إنّّه يقوم بالاقْتباس، ولكنّه لا يعزو أبدًا إلى مرجع! ولعلّ السّبب وراء هذا هو اعتقاده بأنّ عين الكلام ليس مُهمًّا

بقدر الفكرة المُعبَّر عنها بالكلام، فإنَّ أهمَّ ما يُميِّز هذا الكتاب هو الأفكار، وكيفية التَّفكير، وكيفية التَّعامل مع الأفكار وتحليلها!

ناقش «بيرلنسكي» قدرة العلم على الإجابة عن الأسئلة، وكذلك الهجمة الإلحادية الشَّرسة على الدِّين إلى درجة أنَّ الادِّعاءات لم تعد منطقية على الإطلاق! وناقش أيضاً ادِّعاء أنَّ الدِّين يُسمِّم كلَّ شيءٍ، وتكلَّم أيضاً عن مسألة الإيمان بالغيب، ومدى عقلانيته ومنطقيته، وكذلك قال كلاماً نفيساً عن الدَّلِيل الكلامي الكوسمولوجي، بالإضافة إلى سرد رائع جداً لتاريخ تطوُّر الآراء الكوسمولوجية، وقُبُول الانفجار العظيم كنظرية مُستقرَّة مبنية على الأدلة النظرية والمرصودة.

«بيرلنسكي» في هذا الكتاب يُقدِّم الإيمان بوجود إله، كموقف عقلائي ومنطقي تجاه الأسئلة التَّالية: لماذا توجد مسئوليات أخلاقية يشعر بها كل إنسان؟ ما سبب وُجود الكون؟ لماذا يوجد هذا الوُجود أصلاً؟ ما سبب ضُبط الكون للسَّماح بنشأة الحياة؟ لماذا الإنسان مُميِّز هكذا بين كل الكائنات الأخرى؟ ويقوم بمناقشة أبرز الآراء البديلة التي يُقدِّمها العلماء، ويبيِّن أنَّ البديل المُقدِّم غالباً ما يكون بدافع إيماني إيديولوجي! كما أنَّه قدَّم نقداً جيِّداً لنظرية التَّطوُّر، وبيِّن أنَّ أهمَّ الإشكاليات العلمية التي لا تستطيع النظرية تقديم جواب لها!

في الحقيقة استمتعت كثيراً بالعبارات الفلسفية المنطقية التي قالها «بيرلنسكي»، ويعيبه فقط أنَّه في أحيانٍ كثيرة لا يتطرَّق للموضوع مباشرة، ولكنَّه يُقدِّم لها بكلام يُمكن تجاهله، ولكن على كلِّ حال، فإنَّ المؤلِّف له أسلوب ساخر مُميِّز في نقد أفكار المُلحدِين، وفي عرض حُججهم التي يقوم بنقدها! وأنا سعيد جداً بقراءة الكتاب، وبأنَّه أصبح مُترجماً إلى اللغة العربية، خصوصاً مع تعليقات الشيخ عبد الله الشهري التي أشتاق إلى قراءتها، وأنصح المُهتمين باقتناء الكتاب العربي، وقراءته!

Preface to The First Edition

- We have been vouchsafed four powerful and profound scientific theories since the great scientific revolution of the West was set in motion in the seventeenth century: Newtonian mechanics, James Clerk Maxwell's theory of the electromagnetic field, special and general relativity, and quantum

mechanics. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p xiv, xv.]

- No scientific theory touches on the mysteries that the religious tradition addresses. A man asking why his days are short and full of suffering is not disposed to turn to algebraic quantum field theory for the answer. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p xvi.]
- While science has nothing of value to say on the great and aching questions of life, death, love, and meaning, what the religious traditions of mankind have said forms a coherent body of thought. The yearnings of the human soul are not in vain. There is a system of belief adequate to the complexity of experience. There is recompense for suffering. A principle beyond selfishness is at work in the cosmos. All will be well. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p xvi]
- I do not know whether any of this is true. I am certain that the scientific community does not know that it is false. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p xvi]

1 No Gods Before Me

- For Islamic radicals, “the sword is more telling than the book,” as the Arab poet Abu Tammam wrote with menacing authority some eight hundred years ago. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p5.]
- What astronomical observations may, in fact, have demonstrated is that the earth is no more numerous than a single grain of sand on a vast beach. Significance is, of course, otherwise. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p8.]

2 Nights of Doubt

- Whether God exists—that is one question. Whether belief in his existence plays an important role in human life—that is another. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p11.]

- “In Islam, as in no other religion,” the historian David King has remarked, “the performance of various aspects of religious ritual has been assisted by scientific procedure.” [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p14.]
- And now a question: Does the Koran commend the study of the natural world? And an answer: It does. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p14.]
- It is a point that did not fail to escape the notice of the most perceptive of the Arab philosophers, the gazelle, Abu Hamid Muhammad Al-Ghazâli. Writing with remarkable prescience about the scientists he called naturalists, and this in the eleventh century, Al Ghazâli was quite prepared to admit that their studies served to reveal “the wonders of creation.” [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p16.]
- Why should a limited and finite organ such as the human brain have the power to see into the heart of matter or mathematics? ... This is a question that Darwinian biology has not yet answered. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p16, 17.]
- Nonetheless, there is this awkward fact: The twentieth century was not an age of faith, and it was awful. Lenin, Stalin, Hitler, Mao, and Pol Pot will never be counted among the religious leaders of mankind. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p19.]
- In *The Brothers Karamazov*, Ivan Karamazov exclaims that if God does not exist, then everything is permitted. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p19.]
- The physicist Steven Weinberg delivered an address. As one of the authors of the theory of electroweak unification, the work for which he was awarded a Nobel Prize, he is a figure of great stature. “Religion,” he affirmed, “is an insult to human dignity. With or without it you would have good people doing good things and evil people doing evil things. But for good people to do evil things, that takes religion” (italics added). [David Berlinski: *The*

Devil's Delusion (Atheism and It's Scientific Pretensions), Basic Books 2009, p20, 21.]

- In speaking thus, Weinberg was warmly applauded, not one member of his audience asking the question one might have thought pertinent: Just who has imposed on the suffering human race poison gas, barbed wire, high explosives, experiments in eugenics, the formula for Zyklon B, heavy artillery, pseudo-scientific justifications for mass murder, cluster bombs, attack submarines, napalm, inter-continental ballistic missiles, military space platforms, and nuclear weapons? If memory serves, it was not the Vatican. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p21.]
- On one such occasion somewhere in Eastern Europe, an SS officer watched languidly, his machine gun cradled, as an elderly and bearded Hasidic Jew laboriously dug what he knew to be his grave. Standing up straight, he addressed his executioner. “God is watching what you are doing,” he said. And then he was shot dead. What Hitler did not believe and what Stalin did not believe and what Mao did not believe and what the SS did not believe and what the Gestapo did not believe and what the NKVD did not believe and what the commissars, functionaries, swaggering executioners, Nazi doctors, Communist Party theoreticians, intellectuals, Brown Shirts, Black Shirts, gauleiters, and a thousand party hacks did not believe was that God was watching what they were doing. And as far as we can tell, very few of those carrying out the horrors of the twentieth century worried overmuch that God was watching what they were doing either. That is, after all, the meaning of a secular society. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p26, 27.]
- A generation of German biologists had read Darwin and concluded that competition between species was reflected in human affairs by competition between races. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p27.]
- Much occupied in the closing days of the war with preserving their reputation—their reputation for diabolical wickedness— members of the SS took a perverse satisfaction in assuring one another that whatever they had done, it would not be believed, and if believed, blame would be assigned to

- their victims. In this, they were correct. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p29.]
- In 1984, Holland legalized euthanasia. Critics immediately objected that Dutch doctors, having been given the right to kill their elderly patients at their request, would almost at once find reasons to kill patients at their whim. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p32.]
 - Why should people remain good when unobserved and unpoliced by God? Do people remain good when unpoliced by the police? If Dawkins believes that they do, he must explain the existence of the criminal law, and if he believes that they do not, then he must explain why moral enforcement is not needed at the place where law enforcement ends. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p34.]
 - If moral statements are about something, then the universe is not quite as science suggests it is, since physical theories, having said nothing about God, say nothing about right or wrong, good or bad. To admit this would force philosophers to confront the possibility that the physical sciences offer a grossly inadequate view of reality. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p35.]
 - In many ways, the issues raised by the existence of moral laws suggest a surprising connection between the laws of physics and the laws of morality. In both cases, questions arise very quickly as to the source of such laws and the reason for their truth. We do not know why the laws of nature are true, even though we can sense that the question hides some sort of profound mystery. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p36, 37.]
 - A similar discussion has long been current in philosophy and has its source in Plato's Euthyphro. There Socrates asks whether what is good is good because the gods have declared it so, or whether the gods have declared it so because it is good. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p37.]
 - There remains nothing as a possibility in thought, if only by a process of elimination, and nothing is the preferred possibility in moral thought for the same reason it is the preferred possibility in physical thought: If logic is

unavailing, then better nothing than God. [David Berlinski: *The Devil's Delusion (Atheism and Its Scientific Pretensions)*, Basic Books 2009, p38.]

- If moral imperatives are not commanded by God's will, and if they are not in some sense absolute, then what ought to be is a matter simply of what men and women decide should be. There is no other source of judgment. What is this if not another way of saying that if God does not exist, everything is permitted? [David Berlinski: *The Devil's Delusion (Atheism and Its Scientific Pretensions)*, Basic Books 2009, p40.]

3 Horses Do Not Fly

- Looking thus toward those feet of clay, Sam Harris and Christopher Hitchens observe that many religious claims do not by the light of contemporary science appear to be true. Did Muhammad fly to Jerusalem on a horse named Borak? What an idea, Hitchens writes, observing alertly that “horses cannot and do not fly.” [David Berlinski: *The Devil's Delusion (Atheism and Its Scientific Pretensions)*, Basic Books 2009, p44.]
- It hardly matters. What is at issue is not so much the character of the Deity but his existence. And the question I am asking is not whether he exists but whether science has shown that he does not. [David Berlinski: *The Devil's Delusion (Atheism and Its Scientific Pretensions)*, Basic Books 2009, p45.]
- We can make no sense either of daily life or the physical sciences in terms of things that are seen. The past has gone to the place where the past goes; the future has not arrived. We remember the one; we count on the other. If this is not faith, what, then, is it? [David Berlinski: *The Devil's Delusion (Atheism and Its Scientific Pretensions)*, Basic Books 2009, p45.]
- Mathematical physics has the narrative shape of a quest; physicists have placed their faith in the idea that deep down the universe is coordinated by a great plan, a rational system of organization, a hidden but accessible scheme, one that when finally seen in all its limpid but austere elegance, will flood the soul with gratitude. [David Berlinski: *The Devil's Delusion (Atheism and Its Scientific Pretensions)*, Basic Books 2009, p45.]
- “All we [physicists] wish to do,” Gerard 't Hooft has remarked, “is marvel at Nature's beauty and simplicity. We have seen and tasted the beauty, simplicity and universality of our latest theories ... We are now trying to uncover more of that. It is our belief that there is more.” Our belief—meaning

our faith. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p45, 46.]

- In his remarkable treatise *The Road to Reality*, Roger Penrose quotes a letter from the mathematician Richard Thomas of the Imperial College in London. What is one to make, Penrose asks, of the remarkable, strange, and baffling mathematical results that have appeared in theoretical physics over the past twenty years or so? Thomas's reply is instructive and it is quite moving. "To a mathematician," he writes, "these things cannot be coincidence, they must come from a higher reason. And that reason is the assumption that this big mathematical theory describes nature". [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p46.]
- There remains the obvious question: By what standards might we determine that faith in science is reasonable, but that faith in God is not? [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p47, 48.]
- What a physicist counts as evidence is not what a mathematician generally accepts. Evidence in engineering has little to do with evidence in art, and while everyone can agree that it is wrong to go off half-baked, half-cocked, or half-right, what counts as being baked, cocked, or right is simply too variable to suggest a plausible general principle. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p48.]
- When a general principle is advanced, it collapses quickly into absurdity. Thus Sam Harris argues that "to believe that God exists is to believe that I stand in some relation to his existence such that his existence is itself the reason for my belief" (italics added). [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p48.]
- A neutrino by itself cannot function as a reason for my belief. It is a subatomic particle, for heaven's sake. What I believe is a proposition, and so an abstract entity—that neutrinos have mass. How could a subatomic particle enter into a relationship with the object of my belief? But neither can a neutrino be the cause of my belief. I have, after all, never seen a neutrino: not one of them has ever gotten me to believe in it. The neutrino, together with almost everything else, lies at the end of an immense inferential trail, a complicated

set of judgments. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p49.]

- Believing as I do that neutrinos have mass—it is one of my oldest and most deeply held convictions—I believe what I do on the basis of the fundamental laws of physics and a congeries of computational schemes, algorithms, specialized programming languages, techniques for numerical integration, huge canned programs, computer graphics, interpolation methods, nifty shortcuts, and the best efforts by mathematicians and physicists to convert the data of various experiments into coherent patterns, artfully revealing symmetries and continuous narratives. The neutrino has nothing to do with it. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p49.]
- Within mathematical physics, the theory determines the evidence, and not the other way around. What sense could one make of the claim that top quarks exist in the absence of the Standard Model of particle physics? [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p50.]
- Neither the premises nor the conclusions of any scientific theory mention the existence of God. I have checked this carefully. The theories are by themselves unrevealing. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p50.]
- If what is natural has been defined in terms of what the natural sciences reveal, no progress in thought has been recorded. If not, what reason is there to conclude that everything is an “aspect of the universe revealed by the natural sciences”? There is no reason at all. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p51.]
- There is nothing in nature, ancient Greek atomists said, but atoms and the void, and while this claim has over the centuries been refined, it remains deep down the same. The end of the matter is matter. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p53.]
- Materialists have always hoped that by going downward, they would at last reach the ultimate level of analysis and so the place where Nature reveals her ontological essentials by means of a finite number of elementary particles. This is a matter of faith. It is entirely possible that there may be as many

elementary particles as there is funding available to investigate them. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p53.]

- Here is one account, an Internet staple. To apply the scientific method: 1. Observe some aspect of the universe. 2. Form a hypothesis that potentially explains what you have observed. 3. Make testable predictions from that hypothesis. 4. Make observations or experiments that can test those predictions. 5. Modify your hypothesis until it is in accord with all observations and predictions. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p55.]
- The philosopher Michael Devitt thus argues that “there is only one way of knowing, the empirical way that is the basis of science.” [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p57.]

4 The Cause

- The cosmological argument emerges from a simple question and its answer. The question: What caused the universe? The answer: Something. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p63.]
- Some form of this argument has appeared in every human culture. It is universal. For all men, this argument sometimes appears sound, and for some men, always. Is this a surprise? We are talking, after all, about the existence of God, and if the issue were easily decided, we would not be talking. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p63.]
- This is not by itself an argument for the existence of God. It is suggestive without being conclusive. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p64.]
- It is one thing to deny that there is a God; it is quite another to deny that the universe has a cause. What remains, if the universe does have a cause, is the gap between what brought the universe into existence and traditional conceptions of the deity. This is no trivial matter. None - theless, the cosmological argument succeeds in displacing the burden of proof from its starting point (Is there a God) to a place much later in the argument (Is it

right and proper to think that the cause of the universe is God?). [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p64.]

- Aquinas says, “there is an order of efficient causes.” But just as no man can be his own father, no effect can be its own cause. A series of effects preceded by their causes forms a luminous meta physical trail going backward into the past, because, as Aquinas argues, causes must precede their effects. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p67.]
- Can a series of this sort be infinitely continued, so that it simply disappears into the loom of time? Aquinas argues that when it comes to causes, “it is not possible to go on to infinity, because in all ... causes following in order, the first is the cause of the intermediate cause, and the intermediate is the cause of the ultimate cause.” [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p67.]
- If a series of causes does not start, it cannot get going, and if it does not get going, then there will be no intermediate causes, and if there are no intermediate causes, then over here, where we have just noticed that a blow has caused a bruise, there is no explanation for what is before our eyes. Either there is a first cause or there is no cause at all, and since there are causes at work in nature, there must be a first. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p68.]
- The first cause, Aquinas identified with God, because in at least one respect, a first cause exhibits an important property of the divine: It is uncaused. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p]
- This is a weak but not an absurd argument, and while Aquinas’s conclusion may not be true, objections to his argument are frequently inept. Thus Richard Dawkins writes that Aquinas “makes the entirely unwarranted assumption that God is immune to the regress.” It is a commonly made criticism. Lumbering dutifully in Dawkins’s turbulent wake, Victor Stenger makes it as well. But Aquinas makes no such assumption, and thus none that could be unwarranted. It is the conclusion of his argument that causes in

nature cannot form an infinite series. [David Berlinski: *The Devil's Delusion (Atheism and Its Scientific Pretensions)*, Basic Books 2009, p68.]

- The universe, orthodox cosmologists believe, came into existence as the expression of an explosion—what is now called the Big Bang. The word explosion is a sign that words have failed us, as they so often do, for it suggests a humanly comprehensible event—a gigantic explosion or a stupendous eruption. [David Berlinski: *The Devil's Delusion (Atheism and Its Scientific Pretensions)*, Basic Books 2009, p69.]
- This is absurd. The Big Bang was not an event taking place at a time or in a place. Space and time were themselves created by the Big Bang, the measure along with the measured. [David Berlinski: *The Devil's Delusion (Atheism and Its Scientific Pretensions)*, Basic Books 2009, p69.]
- Whatever its name, as far as most physicists are concerned, the Big Bang is now a part of the established structure of modern physics. [David Berlinski: *The Devil's Delusion (Atheism and Its Scientific Pretensions)*, Basic Books 2009, p70.]
- The Big Bang has come to signify virtually a universal creed, men and women who know nothing of cosmology convinced that the rumble of creation lies within reach of their collective memory. [David Berlinski: *The Devil's Delusion (Atheism and Its Scientific Pretensions)*, Basic Books 2009, p70.]
- If the Big Bang expresses a new idea in physics, it suggests an old idea in thought: In the beginning God created the heaven and the earth. This unwelcome juxtaposition of physical and biblical ideas persuaded the astrophysicist Fred Hoyle, an ardent atheist, to dismiss the Big Bang after he had named it. [David Berlinski: *The Devil's Delusion (Atheism and Its Scientific Pretensions)*, Basic Books 2009, p70.]
- Nonetheless, there is a very natural connection between the fact that the universe had a beginning and the hypothesis that it had a creator. It is a connection so plain that, glowing with its own energy, it may be seen in the dark. [David Berlinski: *The Devil's Delusion (Atheism and Its Scientific Pretensions)*, Basic Books 2009, p71.]
- All might have been well, or at least better than it turned out to be, had the Big Bang been another one of those tedious ideas that flicker luridly for a moment and then wink out. There are so many of them. But quite the contrary

proved to be the case. Over the course of more than half a century—a very long time in the history of the physical sciences—inferences gathered strength separately, and when combined they gathered strength in virtue of their combination. One line of inference was observational; the second, theoretical; the two together, irresistible. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p72.]

- Examining a very small sample of twenty or so galaxies, the American astronomer Vesto Slipher observed that the frequency of their hydrogen atoms was shifted to the red portion of the spectrum. Using a far more sophisticated telescope than any at Slipher's disposal, Edwin Hubble made the same discovery in the early 1930s, and unlike poor Slipher, he knew he had struck gold. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p73.]
- The galactic redshift, Hubble realized, was an exceptionally vivid cosmic clue, a bit of evidence from far away and long ago, and as with all clues its value lay in the questions it prompted. Why should galactic light be shifted to the red and not the blue portions of the spectrum? Why, for that matter, should it be shifted at all? [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p73.]
- The inference to the Big Bang now follows. A universe that is expanding is a universe with a clear path into the past. If things are now far apart, they must at one point have been close together; and if things were once close together, they must at one point have been hotter than they are now, the contraction of space acting to compress its constituents like a vise, and so increase their energy. The retreat into the past ends in a state in which material particles are at no distance from one another and the temperature, density, and curvature of the universe are infinite. Such a state is known as a singularity, and in the case of the cosmos it is known as the Big Bang singularity. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p74.]
- In the 1920s, both Aleksandr Friedmann and Georges Lemaître discovered the solutions to the field equations that have dominated cosmology ever since, their work coming to amalgamate itself into a single denomination as Friedmann- Lemaître (FL) cosmology. To Einstein's pained surprise, FL

cosmology indicated that the universe was either expanding or contracting, a conclusion nicely in accord with Hubble's observation but profoundly in conflict with models of the universe in which the universe remained resolutely unchanging. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p77.]

- In 1963, the physicists Arno Penzias and Robert Wilson observed what seemed to be the living remnants of the Big Bang—and after 14 billion years!— when in 1962 they detected, by means of a hum in their equipment, a signal in the night sky they could only explain as the remnants of the microwave radiation background left over from the Big Bang itself. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p78.]
- More than anything else, this observation, and the inference it provoked, persuaded physicists that the structure of Big Bang cosmology was anchored into fact. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p78.]
- But in the mid-1960s, Roger Penrose and Stephen Hawking demonstrated that insofar as the backward contraction of the universe was controlled by the equations of general relativity, almost all lines of conveyance came to an end. The singularity was inescapable. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p78.]
- If the universe did not begin, but had nonetheless only a finite temporal extent, what on earth are we to think at all? [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p80.]
- The cosmological beginning may be obscure, but the universe is finite in time. This is something that until the twentieth century was not known. When it became known, it astonished the community of physicists—and everyone else. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p80.]
- If nothing else, the facts of Big Bang cosmology indicate that one objection to the argument that Thomas Aquinas offered is empirically unfounded: Causes in nature do come to an end. If science has shown that God does not exist, it has not been by appealing to Big Bang cosmology. The hypothesis of God's existence and the facts of contemporary cosmology are consistent.

[David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p80.]

- Misdirection: The Big Bang singularity does not represent a physical concept, because it cannot be accommodated by a physical theory. It is a point at which physical theories give way. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p81.]
- “Perhaps the best argument in favor of the thesis that the Big Bang supports theism,” the astrophysicist Christopher Isham has observed, “is the obvious unease with which it is greeted by some atheist physicists. At times this has led to scientific ideas, such as continuous creation or an oscillating universe, being advanced with a tenacity which so exceeds their intrinsic worth that one can only suspect the operation of psychological forces lying very much deeper than the usual academic desire of a theorist to support his or her theory.” [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p81.]

5 The Reason

- The cosmological argument just given covers familiar ground: God is a cause. But God enters the troubled human imagination in a second way, and that is as the answer to the question why the universe exists at all. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p83.]
- Even if we understood how the universe came into existence, the question why it exists and why it continues to exist would remain. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p83.]
- Aquinas applies this argument to the universe, because he can see no reason to suppose that its existence is guaranteed. If it might not exist, why, then, does it exist? Why indeed? [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p84.]
- A universe of perishable things is not necessarily perishable. This objection does not by itself close the case. No case in metaphysics or theology is ever closed. But it does indicate that some further argument is needed, and this Aquinas does not provide. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p86.]

- A universe of this sort [eternal] makes a busy, causally imperious God unnecessary; what is worse, it makes him incoherent. A cause must precede its effect, and if the universe is eternal, there was no moment in which God could have brought about the creation of the universe. In a world with so much time, it is odd to think that God—of all people!—would have no time in which to work. The best he could do from the outside would be to barge into the universe occasionally and cause a great deal of commotion. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p87.]
- “If the universe was always there and will always be there, why is it there at all?” There is no point in answering this question by assuming that our own fond familiar universe must exist. With all due respect to the universe, this is an assumption no one wishes to make, because no description that we can offer of the universe suggests that its existence is necessary. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p87.]
- God is in this sense an answer to the question long posed by metaphysicians: Why is there something rather than nothing? [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p89.]
- If anything exists contingently, the second cosmological argument affirms, at least one thing exists necessarily. There is something rather than nothing, because at least one part of existence has its origins in what must be. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p90.]
- If light is a particle and a wave, religious believers might observe, God is a Father, a Son, and a Holy Ghost. This is not an analogy that has captured the allegiance of scientific atheists. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p92, 93.]
- Considering the cosmological argument, the physicist Victor Stenger scoffs that it is the “last resort of the theist who seeks to argue for the existence of God from science and finds all his other arguments fail.” [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p95.]

- If God must exist, the question why God does exist answers itself. Must is must. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p95.]
- But it is worth remembering that what is at issue is not whether something is more natural than anything, but why the universe exists at all. Naturalness has nothing to do with it. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p95.]
- “One thing [that] is clear,” a physicist writes, “in our framing of questions such as ‘How did the Universe get started?’ is that the Universe was self-creating. This is not a statement on a ‘cause’ behind the origin of the Universe, nor is it a statement on a lack of purpose or destiny. It is simply a statement that the Universe was emergent, that the actual Universe probably derived from an indeterminate sea of potentiality that we call the quantum vacuum, whose properties may always remain beyond our current understanding.” [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p96.]
- Having begun with Stenger, I might as well finish him off. Proposing to show how something might emerge from nothing, he introduces “another universe [that] existed prior to ours that tunneled through . . . to become our universe. Critics will argue that we have no way of observing such an earlier universe, and so this is not very scientific” (italics added). This is true. Critics will do just that. Before they do, they will certainly observe that Stenger has completely misunderstood the terms of the problem that he has set himself, and that far from showing how something can arise from nothing, he has shown only that something might arise from something else. This is not an observation that has ever evoked a fire - storm of controversy. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p97.]
- The Sea of Indeterminate Potentiality, and all cognate concepts, belong to a group of physical arguments with two aims. The first is to find a way around the initial singularity of standard Big Bang cosmology. Physicists accept this aim devoutly because the Big Bang singularity strikes an uncomfortably theistic note. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p97.]

- The second aim is to account for the emergence of the universe in some way that will allow physicists to say with quiet pride that they have gotten the thing to appear from nothing, and especially nothing resembling a deity or a singularity. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p98.]
- Imagine that a cat has been placed in a sealed container, together with a device that if it goes off will kill it—a revolver, say, or some sort of radioactive pellet. Whether the device goes off is a matter of chance. So long as no one is looking, the cat exists in a superposition of quantum states, at once half dead (the gun might fire) and half alive (it might not). As soon as an observer peeks into the box, that superposition gives way. That cat is either dead or alive and there are no two ways about it. Schrödinger thought the idea of a cat both alive and dead intellectually discouraging. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p99.]
- Arguments follow from assumptions, and assumptions follow from beliefs, and very rarely—perhaps never—do beliefs reflect an agenda determined entirely by the facts. No less than the doctrines of religious belief, the doctrines of quantum cosmology are what they seem: biased, partial, inconclusive, and largely in the service of passionate but unexamined conviction. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p103, 104.]
- At the conclusion of his paper, he [Alexander Vilenkin] observed that “sadly, quantum cosmology is not likely to become an observational science.” [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p107.]
- Correct. Quantum cosmology is a branch of mathematical metaphysics. It provides no cause for the emergence of the universe, and so does not answer the first cosmological question, and it offers no reason for the existence of the universe, and so does not address the second. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p107, 108.]

6 A Put-up Job

- [The] cosmological constant is a number controlling the expansion of the universe. If it were negative, the universe would appear doomed to contract in upon itself, and if positive, equally doomed to expand out from itself. Like the rest of us, the universe is apparently doomed no matter what it does. And here is the odd point: If the cosmological constant were larger than it is, the universe would have expanded too quickly, and if smaller, it would have collapsed too early, to permit the appearance of living systems. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p110.]
- The second law of thermodynamics affirms that, in a general way, things are running down. The entropy of the universe is everywhere increasing. But if things are running down, what are they running down from? This is the question that physicist and mathematician Roger Penrose asked. And considering the rundown, he could only conclude that the runup was an initial state of the universe whose entropy was very, very low and so very finely tuned. Who ordered that? [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p110.]
- “Scientists,” the physicist Paul Davies has observed, “are slowly waking up to an inconvenient truth—the universe looks suspiciously like a fix. The issue concerns the very laws of nature themselves. For 40 years, physicists and cosmologists have been quietly collecting examples of all too convenient ‘coincidences’ and special features in the underlying laws of the universe that seem to be necessary in order for life, and hence conscious beings, to exist. Change any one of them and the consequences would be lethal.” [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p110, 111.]
- “The universe,” he grumbled afterward, “looks like a put-up job.” An atheist, Hoyle did not care to consider who might have put the job up, and when pressed, he took refuge in the hypothesis that aliens were at fault. In this master stroke he was joined later by Francis Crick. When aliens are dropped from the argument, there remains a very intriguing question: Why do the constants and parameters of theoretical physics obey such tight constraints?

[David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p111.]

- The laws of nature are what they are. They are fundamental. But why are they true? Why do material objects attract one another throughout the universe with a kind of brute and aching inevitability? Why is space-and-time curved by the presence of matter? Why is the electron charged? Why? Yes, why? [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p111.]
- Questions about the parameters and laws of physics form a single insistent question in thought: Why are things as they are when what they are seems anything but arbitrary? [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p112.]
- The idea has had a tremendous unifying power, suggesting that nature's elementary particles could be recovered from one fundamental object vibrating in various ways. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p116.]
- In *The Trouble with Physics*, written by Lee Smolin, and *Not Even Wrong*, by Peter Woit, string theory was examined with some sympathy and found wanting. Neither author could find a theory in the place where theoreticians said a theory should be, and both authors noted with some asperity that string theory had no apparent connections to experiment and that none were in prospect. Woit went so far as to observe that the mathematical structure on which the theory rested, far from being a thing of great elegance, was the most horrible thing he had ever seen. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p118.]
- Whatever their other merits, all string theories are characterized by an embarrassing dimensional overflow. Some versions of string theory require twenty-six dimensions; others, ten; and still others, eleven. Our own universe contains only three or four, but in any case, no more than a handful. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p118.]
- But the extra dimensions of string theory are not purely mathematical. They are within string theory quite real, if only because they have useful work they must do. If real, those extra dimensions are none the less invisible. [David

Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p119.]

- If string theory did not uniquely describe one universe, physicists reasoned, the fault lay with our universe: It was not man enough to handle so promiscuous a theory. One universe having proved inadequate, more would be required. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p120.]
- The question why the ultimate laws of nature are true, and why its numerical parameters have the value that they do, now admits of a two-part response. The first is provided by the Landscape. Neither the numbers nor the laws represent anything improbable. And the second by the Anthropic Principle: If they were false, or if they had different values, where would you be? Nowhere, right? And yet here you are. What did you expect? [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p126.]
- This is, to be sure, something that Ellis, Kirchner, and Stoeger recognize. At the beginning of their essay, they observe that “the very existence of [the Landscape] is based on an assumed set of laws . . . which all universes . . . have in common.” It is only later in their essay that they forget what they have written. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p127.]
- If life is not possible elsewhere, then it is necessarily impossible elsewhere. But what might justify this powerful claim if not some physical principle true everywhere? [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p127.]
- The Landscape has, after all, been brought into existence by assumption. It cannot be observed. It embodies an article of faith, and like so much that is a matter of faith, the Landscape is vulnerable to the sadness of doubt. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p128.]
- The thesis that there are no absolute truths—is it an absolute truth? If it is, then some truths are absolute after all, and if some are, why not others? If it is not, just why should we pay it any mind, since its claims on our attention

will vary according to circumstance? [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p129, 130.]

- Joel Primack, a cosmologist at the University of California, Santa Cruz, once posed an interesting question to the physicist Neil Turok: “What is it that makes the electrons continue to follow the laws.” Turok was surprised by the question; he recognized its force. Something seems to compel physical objects to obey the laws of nature, and what makes this observation odd is just that neither compulsion nor obedience are physical ideas. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p132.]
- Medieval theologians understood the question, and they appreciated its power. They offered in response the answer that to their way of thinking made intuitive sense: Deus est ubique conservans mundum. God is everywhere conserving the world. It is God that makes the electron follow His laws. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p132.]
- Writing with what I think is characteristic honesty, Leonard Susskind has this to say: If, for some unforeseen reason, the landscape turns out to be inconsistent—maybe for mathematical reasons, or because it disagrees with observation—I am pretty sure that physicists will go on searching for natural explanations of the world. But I have to say that if that happens, as things stand now we will be in a very awkward position. Without any explanation of nature's fine-tunings we will be hard pressed to answer the ID [intelligent design] critics. One might argue that the hope that a mathematically unique solution will emerge is as faith-based as ID. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p]

7 A Curious Proof That God Does Not Exist

- The zone is dead because the questions it encourages are unanswerable. This hardly means that they are insignificant. Childish questions have their point, and in the case of God's existence, their point is to place in doubt some of the intellectual maneuvers by which His existence is affirmed. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p139.]

- To the question of why believers should not stop with the universe, there is only the counter-question of why physicists should not proceed further to God. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p140.]
- If God did not create the world, then what is His use? And if He did, then what is His explanation? A child's question has given way to an adult's dilemma. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p140.]
- Why an improbable universe demands an improbable God, Dawkins does not say and I do not know. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p142.]
- If God did make the world, it is not improbable. If it is improbable, then God did not make it. The best we could say is that God made a world that would be improbable had it been produced by chance. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p144.]
- An improbable God must thus be improbable in virtue of the process that controls his probability. Just which random process is designed to yield the Deity as a possible outcome? [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p147.]

8 Our Inner Ape, a Darling, and the Human Mind

- The idea that human beings have been endowed with powers and properties not found elsewhere in the animal kingdom—or the universe, so far as we can tell—arises from a simple imperative: Just look around. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p155.]
- But beyond what we have in common with the apes, we have nothing in common, and while the similarities are interesting, the differences are profound. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p156.]
- If human beings are as human beings think they are, then religious ideas about what they are gain purchase. These ideas are ancient. They have arisen

spontaneously in every culture. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p156.]

- In an interesting essay published in 1869 and entitled “Sir Charles Lyell on Geological Climates and the Origin of Species,” Wallace outlined his sense that evolution was inadequate to explain certain obvious features of the human race. The essay is of great importance. It marks a falling-away in faith on the part of a sensitive biologist previously devoted to ideas he had himself introduced. Certain of our “physical characteristics,” he observed, “are not explicable on the theory of variation and survival of the fittest.” These include the human brain, the organs of speech and articulation, the human hand, and the external human form, with its upright posture and bipedal gait. It is only human beings who can rotate their thumb and ring finger in what is called ulnar opposition in order to achieve a grip, a grasp, and a degree of torque denied any of the great apes. No other item on Wallace’s list has been ticked off against real understanding in evolutionary thought. What remains is fantasy of the sort in which the bipedal gait is assigned to an unrecoverable ancestor wishing to peer (or pee) over tall savannah grasses. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p157, 158.]
- Do we understand why alone among the animals, human beings have acquired language? Or a refined and delicate moral system, or art, architecture, music, dance, or mathematics? This is a severely abbreviated list. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p158.]
- Wallace identified a frank conflict between his own theory and what seemed to him obvious facts about the solidity and unchangeability of human nature. The conflict persists; it has not been resolved. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p159.]
- No one doubts that human beings now alive are connected to human beings who lived thousands of years ago. To look at Paleolithic cave drawings is to understand that the graphic arts have not in twelve thousand years changed radically. And no one doubts that human beings are connected to the rest of

the animal kingdom. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p159.]

- “Chimps and gorillas have long been the battleground of our search of uniqueness,” Stephen Jay Gould remarked, “for if we could establish an unambiguous distinction—of kind rather than degree—between ourselves and our closest relatives, we might gain the justification long sought for our cosmic arrogance.” [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p160.]
- In the second section of their paper, King and Wilson describe honestly the deficiencies of this idea. Human beings and the apes, they observe: differ far more than sibling species in anatomy and way of life. Although humans and chimpanzees are rather similar in the structure of thorax and arms, they differ substantially not only in brain size but also in the anatomy of the pelvis, foot, and jaws, as well as in relative lengths of limbs and digits. Humans and chimpanzees also differ significantly in many other anatomical respects, to the extent that nearly every bone in the body of a chimpanzee is readily distinguishable in shape and size from its human counterpart. Associated with these anatomical differences there are, of course, major differences in posture, mode of locomotion, methods of procuring food, and means of communication. Because of these major differences in anatomy and way of life, biologists place the two species not just in separate genera but in separate families. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p162, 163.]
- Before putting aside so carelessly “the idea that man was created in the image of God,” first consider the ideas you propose to champion in its place. If they are no good, why champion them? And they are no good. So why champion them? [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p165.]
- Our ancestors are in any case unavailable. Claims made on their behalf are unverifiable. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p168.]
- It is precisely these initial conditions that popular accounts of human evolution cannot supply. We can say of those hunters and gatherers only that they hunted and they gathered, and we can say this only because it seems

obvious that there was nothing else for them to do. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p168.]

- Those initial conditions must themselves be explained, and in the nature of things, they cannot be explained by the very device they serve to explain. An inclined plane does not incline itself. This is precisely the problem that Newton faced in the Principia. The magnificent system of the world that he devised explained why the orbit of the planets should be conic sections, but Newton was unable to account for the initial conditions that he had himself imposed on his system. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p172.]
- “Mind is like no other property of physical systems,” the physicist Erich Harth has reasonably remarked. “It is not just that we don’t know the mechanisms that give rise to it. We have difficulty in seeing how any mechanism can give rise to it.” [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p175.]
- A successful evolutionary theory of the human mind would, after all, annihilate any claim we might make on behalf of human freedom. The physical sciences do not trifle with determinism: It is the heart and soul of their method. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p178.]
- We do not have a serious scientific theory explaining the powers and properties of the human mind. The claim that the human mind is the product of evolution is not unassailable fact. It is barely coherent. The idea that man was created in the image of God remains what it has always been: And that is the instinctive default position of the human race. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p179.]

9 Miracles in Our Time

- Within the English-speaking world, Darwin’s theory of evolution remains the only scientific theory to be widely championed by the scientific community and widely disbelieved by everyone else. No matter the effort made by biologists, the thing continues to elicit the same reaction it has always elicited: You’ve got to be kidding, right? [David Berlinski: *The Devil's*

Delusion (Atheism and It's Scientific Pretensions), Basic Books 2009, p186.]

- Suspicions about Darwin's theory arise for two reasons. The first: the theory makes little sense. The second: it is supported by little evidence. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p187.]
- In a study reported in the November 20, 2007, edition of Science Daily, Vicki Friesen, a professor of biology, observed: "While that model fits for many parts of the natural world, it doesn't explain why some species appear to have evolved separately, within the same location, where there are no geographic barriers to gene flow." [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p187, 188.]
- The fossil record may be used to justify virtually any position, and often is. There are long eras in which nothing happens. The fire alarms of change then go off in the night. A detailed and continuous record of transition between species is missing, those neat sedimentary layers, as Gould noted time and again, never revealing precisely the phenomena that Darwin proposed to explain. It is hardly a matter on which paleontologists have been reticent. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p188.]
- At the very beginning of his treatise *Vertebrate Paleontology and Evolution*, Robert Carroll observes quite correctly that "most of the fossil record does not support a strictly gradualistic account" of evolution. A "strictly gradualistic" account is precisely what Darwin's theory demands: It is the heart and soul of the theory. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p188, 189.]
- But by the same token, there are no laboratory demonstrations of speciation either, millions of fruit flies coming and going while never once suggesting that they were destined to appear as anything other than fruit flies. This is the conclusion suggested as well by more than six thousand years of artificial selection, the practice of barnyard and backyard alike. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p189.]

- If species have an essential nature that beyond limits cannot change, then random variations and natural selection cannot change them. We must look elsewhere for an account that does justice to their nature or to the facts. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p189.]
- In a research survey published in 2001, and widely ignored thereafter, the evolutionary biologist Joel Kingsolver reported that in sample sizes of more than one thousand individuals, there was virtually no correlation between specific biological traits and either reproductive success or survival. “Important issues about selection,” he remarked with some understatement, “remain unresolved.” [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p189, 190.]
- If Darwin’s theory of evolution has little to contribute to the content of the sciences, it has much to offer their ideology. It serves as the creation myth of our time, assigning properties to nature previously assigned to God. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p190, 191.]
- Although Darwin’s theory is very often compared favorably to the great theories of mathematical physics on the grounds that evolution is as well established as gravity, very few physicists have been heard observing that gravity is as well established as evolution. They know better and they are not stupid. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p191.]
- In the summer of 2007, Eugene Koonin, of the National Center for Biotechnology Information at the National Institutes of Health, published a paper entitled “The Biological Big Bang Model for the Major Transitions in Evolution.” [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p192.]
- “The relationships between major groups within an emergent new class of biological entities,” Koonin goes on to say, “are hard to decipher and do not seem to fit the tree pattern that, following Darwin’s original proposal, remains the dominant description of biological evolution.” The facts that fall outside the margins of Darwin’s theory include “the origin of complex RNA molecules and protein folds; major groups of viruses; archaea and bacteria,

and the principal lineages within each of these prokaryotic domains; eukaryotic supergroups; and animal phyla.” That is, pretty much everything. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p192, 193.]

- Koonin is hardly finished. He has just started to warm up. “In each of these pivotal nexuses in life’s history,” he goes on to say, “the principal ‘types’ seem to appear rapidly and fully equipped with the signature features of the respective new level of biological organization. No intermediate ‘grades’ or intermediate forms between different types are detectable.” [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p193.]
- Writing in the 1960s and 1970s, the Japanese mathematical biologist Motoo Kimura argued that on the genetic level—the place where mutations take place— most changes are selectively neutral. They do nothing to help an organism survive; they may even be deleterious. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p193.]
- A competent mathematician and a fastidious English prose stylist, Kimura was perfectly aware that he was advancing a powerful argument against Darwin’s theory of natural selection. “The neutral theory asserts,” he wrote in the introduction to his masterpiece, *The Neutral Theory of Molecular Evolution*, “that the great majority of evolutionary changes at the molecular level, as revealed by comparative studies of protein and DNA sequences, are caused not by Darwinian selection but by random drift of selectively neutral or nearly neutral mutations”. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p193.]
- Writing in the Proceedings of the National Academy of Sciences, the evolutionary biologist Michael Lynch observed that “Dawkins’s agenda has been to spread the word on the awesome power of natural selection.” The view that results, Lynch remarks, is incomplete and therefore “profoundly misleading.” Lest there be any question about Lynch’s critique, he makes the point explicitly: “What is in question is whether natural selection is a necessary or sufficient force to explain the emergence of the genomic and cellular features central to the building of complex organisms.” [David

Berlinski: *The Devil's Delusion (Atheism and Its Scientific Pretensions)*, Basic Books 2009, p195.]

- The demotion of natural selection from biological superpower to ideological sad sack throws into bright relief an obvious question: How to explain on the basis of a random walk the startling coherence and complexity of living organisms? If the question is obvious, so, too, is its answer: We have no idea. [David Berlinski: *The Devil's Delusion (Atheism and Its Scientific Pretensions)*, Basic Books 2009, p195, 196.]
- Whatever the degree to which Darwin may have “misled science into a dead end,” the biologist Shi V. Liu observed in commenting on Koonin’s paper, “we may still appreciate the role of Darwin in helping scientists [win an] upper hand in fighting against the creationists.” It is hard to be less confused than that. [David Berlinski: *The Devil's Delusion (Atheism and Its Scientific Pretensions)*, Basic Books 2009, p197.]
- When Richard Dawkins observes that genes “created us, body and mind” (emphasis added), he is appealing essentially to a magical connection. There is nothing in any precise concept of the gene that allows a set of biochemicals to create anything at all. If no precise concept of the gene is at issue, the idea that we are created by our genes, body and mind, represents a far less plausible thesis than the correlative doctrine that we are created by our Maker, body and mind. [David Berlinski: *The Devil's Delusion (Atheism and Its Scientific Pretensions)*, Basic Books 2009, p199.]
- The God of the Gaps may now be invited to comment— strictly as an outside observer, of course. He is addressing us. And this is what He has to say: You have no idea whatsoever how the ordered physical, moral, mental, aesthetic, and social world in which you live could have ever arisen from the seething anarchy of the elementary particles. [David Berlinski: *The Devil's Delusion (Atheism and Its Scientific Pretensions)*, Basic Books 2009, p201.]
- The theories that we have do what they can do, and then they stop. They do not stop because a detail is missing; they stop because we cannot go on. [David Berlinski: *The Devil's Delusion (Atheism and Its Scientific Pretensions)*, Basic Books 2009, p202.]
- The eye is not simply a biological organ, although surely it is that. It is a biological organ that allows living creatures to see. If we cannot say what

seeing comes to in physical or material terms, then we cannot say whether any theory is adequate to explain the appearance of an organ making sight possible. [David Berlinski: *The Devil's Delusion (Atheism and Its Scientific Pretensions)*, Basic Books 2009, p203.]

- “Today we cannot see whether Schrödinger’s equation contains frogs, musical composers, or morality,” Richard Feynman remarked in his lectures on turbulence. The remark has been widely quoted. It is honest. The words that follow are rarely quoted. “We cannot say whether something beyond it like God is needed, or not. And so we can all hold strong opinions either way.” [David Berlinski: *The Devil's Delusion (Atheism and Its Scientific Pretensions)*, Basic Books 2009, p204.]
- These are things we do: It is in our nature to do them. But how do we do them? By what means accessible to the imagination does a sterile and utterly insensate physical world become the garrulous, never-ending, infinitely varied, boisterous human world? The more the physical world is studied, and the richer our grasp of its principles, the greater the gap between what it represents and what we embody. [David Berlinski: *The Devil's Delusion (Atheism and Its Scientific Pretensions)*, Basic Books 2009, p205.]
- We live by love and longing, death and the devastation that time imposes. How did they enter into the world? And why? The world of the physical sciences is not our world, and if our world has things that cannot be explained in their terms, then we must search elsewhere for their explanation. [David Berlinski: *The Devil's Delusion (Atheism and Its Scientific Pretensions)*, Basic Books 2009, p207.]

10 The Cardinal and His Cathedral

- But texts—written words, after all—can neither lie nor err, although they can certainly convey a lie or communicate an error. Lying and erring are things that men and women do. Texts can, on the other hand, be true or false, but Galileo is concerned to repeat the common view that biblical texts are not only true, but true absolutely and inviolably. And this suggests that such texts express propositions that not only are true, but could not be false. [David Berlinski: *The Devil's Delusion (Atheism and Its Scientific Pretensions)*, Basic Books 2009, p211.]

- Now, Galileo’s scientific career was, if nothing else, a matter of demonstrating that in certain fundamental respects, the ancient and subtle Ptolemaic system, according to which the heavens revolved around the earth in a series of celestial spheres, was mistaken. But the Ptolemaic account was the biblical account. It was, in fact, the account common in the ancient Near East, where only the Greeks were daring enough to speculate that the earth might be in motion around the sun, and even the Greeks were unable to reconcile this thesis with the plain evidence of their senses. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p211.]
- The “book of God’s word” and the “book of God’s works,” Francis Bacon argued, are not in conflict. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p213.]
- A paper published recently in the Proceedings of the Biological Society of Washington DC concluded that the so-called Cambrian explosion, the sudden appearance of new life forms about 530 million years ago, could best be understood in terms of an intelligent design—hardly a position unknown in Western thought. The paper was, of course, peer-reviewed by three prominent evolutionary biologists. Wise men attend to the publication of every one of the Proceedings’ papers, but in the case of Stephen Meyer’s “The Origin of Biological Information and the Higher Taxonomic Categories,” the Board of Editors was at once given to understand that they had done a bad thing. Their indecent capitulation followed at once. Publication of the paper, they confessed, was a mistake. It would never happen again. It had barely happened at all. [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p220.]
- “If scientists do not oppose antievolutionism,” remarked Eugenie Scott, the executive director of the National Center for Science Education, “it will reach more people with the mistaken idea that evolution is scientifically weak.” Scott’s understanding of “opposition” had nothing to do with reasoned discussion. It had nothing to do with reason at all. Discussing the issue was out of the question. Her advice to her colleagues was considerably

more to the point: “Avoid debates.” [David Berlinski: *The Devil's Delusion (Atheism and It's Scientific Pretensions)*, Basic Books 2009, p220.]

الحمد لله الذي بنعمته تتم الصالحات