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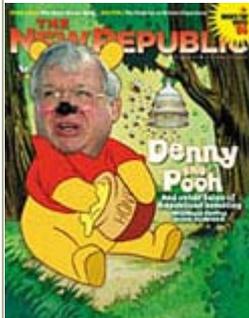
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The Fear of Religion

by [Thomas Nagel](#) 1 | 2

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The God Delusion

By Richard Dawkins
(Houghton Mifflin, 352 pp., \$26)
Click [here](#) to purchase the book.

Richard Dawkins, the most prominent and accomplished scientific writer of our time, is convinced that religion is the enemy of science. Not just fundamentalist or fanatical or extremist religion, but all religion that admits faith as a ground of belief and asserts the existence of God. In his new book, he attacks religion with all the weapons at his disposal, and as a result the book is a very uneven collection of scriptural ridicule, amateur philosophy, historical and contemporary horror stories, anthropological speculations, and cosmological scientific argument. Dawkins wants both to dissuade believers and to embolden atheists.

Since Dawkins is operating mostly outside the range of his scientific expertise, it is not surprising that *The God Delusion* lacks the superb instructive lucidity of his books on evolutionary theory, such as *The Selfish Gene*, *The Blind Watchmaker*, and *Climbing Mount Improbable*. In this new book I found that kind of pleasure only in the brief explanation of why the moth flies into the candle flame--an example introduced to illustrate how a useful trait can have disastrous side effects. (Dawkins believes the prevalence of religion among human beings is a side effect of the useful trust of childhood.)

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One of Dawkins's aims is to overturn the convention of respect toward religion that belongs to the etiquette of modern civilization. He does this by persistently violating the convention, and being as offensive as possible, and pointing with gleeful outrage at absurd or destructive religious beliefs and practices. This kind of thing was done more entertainingly by H.L. Mencken (whom Dawkins quotes with admiration), but the taboo against open atheistic scorn seems to have become even more powerful since Mencken's day. Dawkins's unmitigated hostility and quotable insults--"The God of the Old Testament is arguably the most unpleasant character in all fiction"--will certainly serve to attract attention, but they are not what make the book interesting.

The important message is a theoretical one, about the reach of a certain kind of scientific explanation. At the core of the book, in a chapter titled "Why There Almost Certainly Is No God," Dawkins sets out with care his position on a question of which the importance cannot be exaggerated: the question of what explains the existence and character of the astounding natural order we can observe in the universe we inhabit. On one side is what he calls "the God Hypothesis," namely that "there exists a superhuman, supernatural intelligence who deliberately designed and created the universe and everything in it, including us." On the other side is Dawkins's alternative view: "any creative intelligence, of sufficient complexity to design anything, comes into existence only as the end product of an extended process of gradual evolution. Creative intelligences, being evolved, necessarily arrive late in the universe, and therefore cannot be responsible for designing it." In Dawkins's view, the ultimate explanation of everything, including evolution, may be found in the laws of physics, which explain the laws of chemistry, which explain the existence and the functioning of the self-replicating molecules that underlie the biological process of genetic mutation and natural selection.

This pair of stark alternatives may not exhaust the possibilities, but it poses the fundamental question clearly. In this central argument of Dawkins's book, the topic is not institutional religion or revealed religion, based on scripture, miracles, or the personal experience of God's presence. It is what used to be called "natural religion," or reflection on the question of the existence and nature of God using only the resources of ordinary human reasoning. This is not the source of most religious belief, but it is important nonetheless.

In a previous chapter, Dawkins dismisses, with contemptuous flippancy the traditional a priori arguments for the existence of God offered by Aquinas and Anselm. I found these attempts at philosophy, along with those in a later chapter on religion and ethics, particularly weak; Dawkins seems to have felt obliged to include them for the sake of completeness. But his real concern is with the argument from design, because there the conflict between religious belief and atheism takes the form of a scientific disagreement--a disagreement over the most plausible explanation of the observable evidence. He argues that contemporary science gives us decisive reason to reject the argument from design, and to regard the existence of God as overwhelmingly improbable.

The argument from design is deceptively simple. If we found a watch lying on a deserted heath (William Paley's famous example from the eighteenth century), we would conclude that such an intricate

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mechanism, whose parts fit together to carry out a specific function, did not come into existence by chance, but that it was created by a designer with that function in mind. Similarly, if we observe any living organism, or one of its parts, such as the eye or the wing or the red blood cell, we have reason to conclude that its much greater physical complexity, precisely suited to carry out specific functions, could not have come into existence by chance, but must have been created by a designer.

The two inferences seem analogous, but they are very different. First, we know how watches are manufactured, and we can go to a watch factory and see it done. But the inference to creation by God is an inference to something that we have not observed and presumably never could observe. Second, the designer and the manufacturer of a watch are human beings with bodies, using physical tools to mold and put together its parts. The supernatural being whose work is inferred by the argument from design for the existence of God is not supposed to be a physical organism inside the world, but someone who creates or acts on the natural world while not being a part of it.

The first difference is not an objection to the argument. Scientific inference to the best explanation of what we can observe often leads to the discovery of things that are themselves unobservable by perception and detectable only by their effects. In this sense, God might be no more and no less observable than an electron or the Big Bang. But the second difference is more troubling, since it is not clear that we can understand the idea of purposive causation--of design--by a non-physical being on analogy with our understanding of purposive causation by a physical being such as a watchmaker. Somehow the observation of the remarkable structure and function of organisms is supposed to lead us to infer as their cause a disembodied intentional agency of a kind totally unlike any that we have ever seen in operation.

Still, even this difference need not be fatal to the theistic argument, since science often concludes that what we observe is to be explained by causes that are not only unobservable, but totally different from anything that has ever been observed, and very difficult to grasp intuitively. To be sure, the hypothesis of a divine creator is not yet a scientific theory with testable consequences independent of the observations on which it is based. And the purposes of such a creator remain obscure, given what we know about the world. But a defender of the argument from design could say that the evidence supports an intentional cause, and that it is hardly surprising that God, the bodiless designer, while to some extent describable theoretically and detectable by his effects, is resistant to full intuitive understanding.

Dawkins's reply to the argument has two parts, one positive and one negative. The positive part consists in describing a third alternative, different from both chance and design, as the explanation of biological complexity. He agrees that the eye, for example, could not have come into existence by chance, but the theory of evolution by natural selection is capable of explaining its existence as due neither to chance nor to design. The negative part of the argument asserts that the hypothesis of design by God is useless as an alternative to the hypothesis of chance, because it just pushes the problem back one step. In other words: who made God? "A designer God cannot be used to explain organized complexity because any God capable of designing anything would have to be complex enough to demand the same kind of

explanation in his own right."

Let me first say something about this negative argument. It depends, I believe, on a misunderstanding of the conclusion of the argument from design, in its traditional sense as an argument for the existence of God. If the argument is supposed to show that a supremely adept and intelligent natural being, with a super-body and a super-brain, is responsible for the design and the creation of life on earth, then of course this "explanation" is no advance on the phenomenon to be explained: if the existence of plants, animals, and people requires explanation, then the existence of such a super-being would require explanation for exactly the same reason. But if we consider what that reason is, we will see that it does not apply to the God hypothesis.

The reason that we are led to the hypothesis of a designer by considering both the watch and the eye is that these are complex physical structures that carry out a complex function, and we cannot see how they could have come into existence out of unorganized matter purely on the basis of the purposeless laws of physics. For the elements of which they are composed to have come together in just this finely tuned way purely as a result of physical and chemical laws would have been such an improbable fluke that we can regard it in effect as impossible: the hypothesis of chance can be ruled out. But God, whatever he may be, is not a complex physical inhabitant of the natural world. The explanation of his existence as a chance concatenation of atoms is not a possibility for which we must find an alternative, because that is not what anybody means by God. If the God hypothesis makes sense at all, it offers a different kind of explanation from those of physical science: purpose or intention of a mind without a body, capable nevertheless of creating and forming the entire physical world. The point of the hypothesis is to claim that not all explanation is physical, and that there is a mental, purposive, or intentional explanation more fundamental than the basic laws of physics, because it explains even them.

Next: "The real opposition between Dawkins's physicalist naturalism and the God hypothesis is a disagreement over whether this end point is physical, extensional, and purposeless, or mental, intentional, and purposive."

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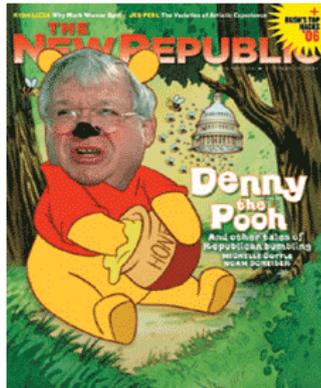
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The Fear of Religion

by **Thomas Nagel** 1 | 2
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A
ll explanations come to an end somewhere. The real opposition between **Dawkins's** physicalist naturalism and the God hypothesis is a disagreement over whether this end point is physical, extensional, and purposeless, or mental, intentional, and purposive. On either view, the ultimate explanation is not itself explained. The God hypothesis does not explain the existence of God, and naturalistic physicalism does not explain the laws of physics.

This entire dialectic leaves out another possibility, namely that there are teleological principles in nature that are explained neither by intentional design nor by purposeless physical causation--principles that therefore provide an independent end point of explanation for the existence and form of living things. That, more or less, is the Aristotelian view that was displaced by the scientific revolution. Law-governed causation by antecedent conditions became the only acceptable form of scientific explanation, and natural tendencies toward certain ends were discredited. The question then became whether non-teleological physical law can explain everything, including the biological order.

Darwin's theory of natural selection offered a way of accounting for the exquisite functional organization of organisms through physical causation, an explanation that revealed it to be the product neither of design nor of hopelessly improbable chance. This is the positive part of **Dawkins's** argument. The physical improbability of such complexity's arising can be radically reduced if it is seen as the result of an enormous number of very small developmental steps, in each of which chance plays a part, together with a selective force that favors the survival of some of

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those forms over others. This is accomplished by the theory of heritable variation, due to repeated small mutations in the genetic material, together with natural selection, due to the differential adaptation of these biological variations to the environments in which they emerge. The result is the appearance of design without design, purely on the basis of a combination of physical causes operating over billions of years.

To be sure, this is only the schema for an explanation. Most of the details of the story can never be recovered, and there are many issues among evolutionary biologists over how the process works. There are also skeptics about whether such a process is capable, even over billions of years, of generating the complexity of life as it is. But I will leave those topics aside, because the biggest question about this alternative to design takes us outside the theory of evolution.

It is a question that **Dawkins** recognizes and tries to address, and it is directly analogous to his question for the God hypothesis: who made God? The problem is this. The theory of evolution through heritable variation and natural selection reduces the improbability of organizational complexity by breaking the process down into a very long series of small steps, each of which is not all that improbable. But each of the steps involves a mutation in a carrier of genetic information--an enormously complex molecule capable both of self-replication and of generating out of surrounding matter a functioning organism that can house it. The molecule is moreover capable sometimes of surviving a slight mutation in its structure to generate a slightly different organism that can also survive. Without such a replicating system there could not be heritable variation, and without heritable variation there could not be natural selection favoring those organisms, and their underlying genes, that are best adapted to the environment.

The entire apparatus of evolutionary explanation therefore depends on the prior existence of genetic material with these remarkable properties. Since 1953 we have known what that material is, and scientists are continually learning more about how DNA does what it does. But since the existence of this material or something like it is a precondition of the possibility of evolution, evolutionary theory cannot explain its existence. We are therefore faced with a problem analogous to that which **Dawkins** thinks faces the argument from design: we have explained the complexity of organic life in terms of something that is itself just as functionally complex as what we originally set out to explain. So the problem is just pushed back one step: how did such a thing come into existence?

Of course there is a huge difference between this explanation and the God hypothesis. We can observe DNA and see how it works. But the problem that originally prompted the argument from design--the overwhelming improbability of such a thing coming into existence by chance, simply through the purposeless laws of physics--remains just as real for this case. Yet this time we cannot replace chance with natural selection.

Dawkins recognizes the problem, but his response to it is pure hand-waving. First, he says it only had to happen once. Next, he says that there are, at a conservative estimate, a billion billion planets in the universe with life-friendly physical and chemical environments like ours. So all we have to suppose is that the probability of something like DNA

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forming under such conditions, given the laws of physics, is not much less than one in a billion billion. And he points out, invoking the so-called anthropic principle, that even if it happened on only one planet, it is no accident that we are able to observe it, since the appearance of life is a condition of our existence.

Dawkins is not a chemist or a physicist. Neither am I, but general expositions of research on the origin of life indicate that no one has a theory that would support anything remotely near such a high probability as one in a billion billion. Naturally there is speculation about possible non-biological chemical precursors of DNA or RNA. But at this point the origin of life remains, in light of what is known about the huge size, the extreme specificity, and the exquisite functional precision of the genetic material, a mystery--an event that could not have occurred by chance and to which no significant probability can be assigned on the basis of what we know of the laws of physics and chemistry.

Yet we know that it happened. That is why the argument from design is still alive, and why scientists who find the conclusion of that argument unacceptable feel there must be a purely physical explanation of why the origin of life is not as physically improbable as it seems. **Dawkins** invokes the possibility that there are vastly many universes besides this one, thus giving chance many more opportunities to create life; but this is just a desperate device to avoid the demand for a real explanation.

I agree with **Dawkins** that the issue of design versus purely physical causation is a scientific question. He is correct to dismiss Stephen Jay Gould's position that science and religion are "non-overlapping magisteria." The conflict is real. But although I am as much of an outsider to religion as he is, I believe it is much more difficult to settle the question than he thinks. I also suspect there are other possibilities besides these two that have not even been thought of yet. The fear of religion leads too many scientifically minded atheists to cling to a defensive, world-flattening reductionism. **Dawkins**, like many of his contemporaries, is hobbled by the assumption that the only alternative to religion is to insist that the ultimate explanation of everything must lie in particle physics, string theory, or whatever purely extensional laws govern the elements of which the material world is composed.

This reductionist dream is nourished by the extraordinary success of the physical sciences in our time, not least in their recent application to the understanding of life through molecular biology. It is natural to try to take any successful intellectual method as far as it will go. Yet the impulse to find an explanation of everything in physics has over the last fifty years gotten out of control. The concepts of physical science provide a very special, and partial, description of the world that experience reveals to us. It is the world with all subjective consciousness, sensory appearances, thought, value, purpose, and will left out. What remains is the mathematically describable order of things and events in space and time.

That conceptual purification launched the extraordinary development of physics and chemistry that has taken place since the seventeenth century. But reductive physicalism turns this description into an exclusive ontology. The reductionist project usually tries to reclaim some of the originally excluded aspects of the world, by analyzing them in physical--that is, behavioral or neurophysiological--terms; but it denies reality to what cannot be so reduced. I believe the project is doomed--that conscious experience, thought, value, and so forth are not illusions, even

though they cannot be identified with physical facts.

I also think that there is no reason to undertake the project in the first place. We have more than one form of understanding. Different forms of understanding are needed for different kinds of subject matter. The great achievements of physical science do not make it capable of encompassing everything, from mathematics to ethics to the experiences of a living animal. We have no reason to dismiss moral reasoning, introspection, or conceptual analysis as ways of discovering the truth just because they are not physics.

Any anti-reductionist view leaves us with very serious problems about how the mutually irreducible types of truths about the world are related. At least part of the truth about us is that we are physical organisms composed of ordinary chemical elements. If thinking, feeling, and valuing aren't merely complicated physical states of the organism, what are they? What is their relation to the brain processes on which they seem to depend? More: if evolution is a purely physical causal process, how can it have brought into existence conscious beings?

A religious worldview is only one response to the conviction that the physical description of the world is incomplete. **Dawkins** says with some justice that the will of God provides a too easy explanation of anything we cannot otherwise understand, and therefore brings inquiry to a stop. Religion need not have this effect, but it can. It would be more reasonable, in my estimation, to admit that we do not now have the understanding or the knowledge on which to base a comprehensive theory of reality.

Dawkins seems to believe that if people could be persuaded to give up the God Hypothesis on scientific grounds, the world would be a better place--not just intellectually, but also morally and politically. He is horrified--as who cannot be?--by the dreadful things that continue to be done in the name of religion, and he argues that the sort of religious conviction that includes a built-in resistance to reason is the true motive behind many of them. But there is no connection between the fascinating philosophical and scientific questions posed by the argument from design and the attacks of September 11. Blind faith and the authority of dogma are dangerous; the view that we can make ultimate sense of the world only by understanding it as the expression of mind or purpose is not. It is unreasonable to think that one must refute the second in order to resist the first.

THOMAS NAGEL is the author, most recently, of *Concealment and Exposure and Other Essays* and, with Liam Murphy, *The Myth of Ownership: Taxes and Justice* (Oxford University Press).

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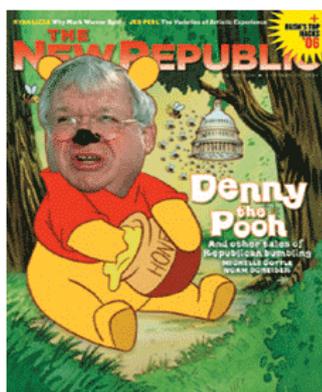
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