

In Favor of God-of-the-Gaps Reasoning

David Snoke*
snoke@pitt.edu

Department of Physics and Astronomy
University of Pittsburgh
Pittsburgh, PA 15260

It is passe to reject “God-of-the-gaps” arguments, but I argue that it is perfectly reasonable to argue against atheism based on its lack of explanatory power. The standard argument against God-of-the-gaps reasoning deviates from the mode of normal scientific discourse, it assumes a view of history which is incorrect, and it tacitly implies a naive optimism about the abilities of science. I encourage apologists to point out gaps of explanation in atheistic theories wherever they see them, and expect atheists to return the favor.

For more than fifteen years, I have read the ASA journal and participated in discussions of science and Christianity. During this time, I have found that while ASA members disagree over many things, certain unquestioned points of agreement flow through all of our discussions. In particular, I have found that no matter what the topic, one common premise seems to reign supreme. This is the universal condemnation of God-of-the-gaps arguments.¹ A person might present all manner of impressive reasoning about something, but if his opponent says “that is a God-of-the-gaps argument,” even the stoutest evidentialist wavers. Why is this so? In this communication, I wish to take a heretical position within the ASA and argue in favor of God-of-the-gaps arguments.

The anti-God-of-the-gaps (AGOG) position, for those who may not have moved in ASA circles long enough, goes essentially as follows. In the past, people argued for the existence of God on the basis of the lack of other explanations for things, that is, “gaps” in our understanding. As science has progressed, many of these things have been explained by science without the need to invoke God’s existence. Consequently, the size and number of gaps where one may hide God have shrunk. Thus, we must not argue for the existence of God on the basis of the failure of the atheistic world view to explain things, lest we eventually have no gaps in which to hide God.

*ASA Member

Three Objections to Anti-God-of-the-Gaps Arguments

1. Normal Rules of Evidential Discourse

On the surface, the AGOG position seems strange when viewed from the perspective of normal scientific discourse. In deciding between two competing theories, we are told at the outset that we must not take into account the failure of one of the theories to explain things. Why not? It is perfectly normal in scientific discourse to point out the weaknesses of theories and to argue against them on the basis of their failures to explain things. If a theory fails to explain something, that does not necessarily mean it is false, but most scientists feel that too many unexplained mysteries substantially weaken the case for a theory.

Let us consider a typical example from science. In my scientific research, I often have discussions in which I propose a model for some system, for example, that a spectral line can be understood as arising from a certain type of electron motion. If another scientist calls my theory into question by pointing out a failure of explanation, I can imagine the following conversation:

Me: I think the electrons move coherently.
The wavelength of this spectral line agrees with my calculation.

Colleague: But if that is true, shouldn't the energy of that second line also agree with your calculation?

Me: You are pointing out a gap of explanation in my theory. That is a "gaps" argument; therefore, it is invalid.

If I acted this way, I would not survive long in academia. Rather, I try to explain the data within my model and if I cannot, I feel I have lost a point in the argument. Yet, this is how AGOG proponents often argue:

Scientist 1: I think that all of life can be explained by random variations of molecules without invoking God. The fact that urea can be created by random processes agrees with my view.

Scientist 2: But if that is the case, shouldn't there also be random generation of DNA? How do you explain the existence of DNA?

Scientist 1: That is a God-of-the-gaps argument; therefore, it is invalid.

Of particular interest to the ASA are two rival theories before us. One says that the most fundamental ground of the universe is personal, that there is a God. The other says that the ground of the universe is impersonal, that there is no God. Do we not want to judge between these two theories based on their explanatory power? Atheists seem to have no qualms with pointing out "gaps" in the theistic theory, for example, the apparent failure to explain evil or the silence of God. Why should we not point out the failures of the atheistic theory to explain things, such as the apparent design of life and the universe or the nearly-universal desire among people to worship something?

I am being deliberately vague about what constitutes an "explanation." Many philosophers have

dealt with this question without agreement; clearly, an explanation that satisfies one person may not work for another person. At the most basic level, an explanation is a story that satisfies the hearer, for whatever reason. Within various groups of people, there are common criteria of what makes a satisfying story, which is why I can and often do convince other scientists to change their minds and accept my explanations of things like spectral lines. To some people, only mathematical equations make a satisfying story; to other people, only teleological "why" explanations are satisfying; perhaps some people only like stories with happy endings.² If another person has different criteria for what makes a satisfying explanation, I will have difficulty convincing him or her of my theory.

What surprises me is that many Christian apologists reject all attempts to discuss failures of explanation, even in areas where all parties *do* share a common standard of explanation. If I point out the failure of the atheistic theory to explain some aspect of design within its own framework, and my opponent does not accept my teleological God-explanation on the grounds that God-explanations are not explanations, we can still agree that the atheistic theory has failed on its own terms on this point, and that this failure constitutes a weakness.

Lack of explanation can weaken a theory even when no acceptable rival theory seems available. Sometimes when too many unexplained entities build up, a previously unacceptable theory can become acceptable, in a Kuhnian "revolution." For example, no one rushed to accept Einstein's Theory of Relativity at the beginning of the twentieth century. Yet, even those who rejected the theory had to admit that the Michelson-Moreley experiment lacked explanation within their frameworks. More recently, the Alvarez theory of the extinction of the dinosaurs by meteor impact has not received universal acceptance, but the thin layer of iridium found in similar geological layers around the world has put opponents on the defensive; it seems to demand explanation.



David Snoke is an associate professor in the Department of Physics and Astronomy of the University of Pittsburgh. From 1993 to 1994, he was a staff physicist at The Aerospace Corporation in El Segundo, California, and from 1990 to 1992, he was an Alexander von Humboldt fellow at the Max Planck Institute in Stuttgart, Germany. He received his Ph.D. in physics from the University of Illinois at Urbana-Champaign in 1990 and his bachelor's degree from Cornell University in 1983. He has published over forty scientific articles on his physics research on semiconductors and Bose-Einstein condensation and has published two scientific books with Cambridge University Press. An ordained elder and licensed preacher in the Presbyterian Church in America, he recently wrote a book, *A Biblical Case for an Old Earth*, published by IBRI in Hatfield, PA, to address his denomination's ongoing debate about the age of the earth. He and his wife Sandra have four children, whom they home school.

Some people have said that arguing *against* a theory does not argue *for* another theory; therefore pointing out gaps in atheistic thought does not support theism. This is silly. Certainly this is not the way science normally works. People arguing over scientific theories call to attention the explanatory failures of rival theories all the time, and everyone accepts this as proper argumentation. If a theory is perceived to have many failures, alternative theories are strengthened.

Therefore, my first objection to the AGOG position is simply that it violates the normal rules of evidential discourse, in which people often point out the unexplained entities in each other's theories. Of course, some people reject evidentialism, arguing that we should presuppose certain theories whether or not they explain anything. I have argued for evidentialism previously,³ but even if one rejects evidentialism, one can hardly call the entire evidentialist program irrational or naive, since all normal scientific discourse is evidential discourse.

2. A False Premise about History

As I have previously discussed,⁴ one reason why people want to reject evidentialism in religion is the underlying belief that if they looked at the evidence seriously, they would lose the argument. Anti-evidentialism is essentially a shell-shocked defensive position. This brings me to my second objection to the AGOG position. Although I am not a historian, I believe it is worth asking whether the premise of the AGOG position is historically valid. What specific gaps did people formerly use to argue for the existence of God, which atheistic science now explains? I can think of some triumphs of explanation in science, such as Maxwell's equations that explained the mysteries of magnets and prisms, or the Copernican/Newtonian theory that explained the orbits of the planets and comets. Did anyone ever argue for the existence of God because we did not understand magnets or the orbits of the planets? Perhaps some pagan shaman somewhere has argued that way, but I see no evidence for any serious Christian argument along these lines.

We must distinguish between bad explanations for certain things *within* the theistic world view, and arguments for the theistic world view itself. People arguing that comets were signs from God or that demons caused all sickness did not argue that God *existed* because comets and demons existed. Rather, starting from a belief in God, they posited a reasonable, though ultimately falsified, theory about comets and demons. In the same way, people working within an atheistic world view have proposed

bad explanations for things, such as the theory of spontaneous generation or the Lamarkian theory of evolution. The falsification of a subtheory within a larger world view does not falsify the whole world view. If it did, every falsified scientific theory would cause everyone to reject all of Western science.

Having read many of the apologetic tomes of the past two thousand years, I see three lines of argument for the existence of God. One line, typified by Aquinas, has argued for the existence of God on the basis of fundamental aspects of the universe such as causality and change. Another line, typified by Paley, has argued that the hand of God is evident in the apparent design of the universe. A third line, typified by Calvin, has argued that God makes himself evident in personal transcendent experiences of people. Has any of these lines of argument been seriously challenged by the successes of science?

The first line of argument received its greatest challenge not from science, but from philosophers such as Kant, who argued essentially that this line of thought does not provide airtight deductive proofs, but instead reduces to evidential arguments on the basis of general experience. As such, these arguments remain as powerful today as ever before, with the same limitations.

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The second line received its challenge from Darwinism, and the last line received its challenge from Marx and Freud. These challenges provided explanations for apparent design and religious experience within the framework of the atheist world view. Yet, more than a century later, these explanations still remain under debate, involving some of the things that we understand the least in science—chemical evolution and the brain. Some people may say that these explanations are beyond doubt, but they cannot argue that these theories come on the heels of numerous other scientific theories that overturned prior Christian arguments for the existence of God. Christians used to argue for the existence of God on the basis of apparent design and religious

experience, and they still argue for the existence of God on the basis of apparent design and religious experience. In other words, part of the appeal of the AGOG position is the sense of progress marching on, removing one Christian evidential apologetic argument after another. Present gaps in evolutionary or Freudian theory can be ignored in light of this track record of success. However, this past history does not exist. Atheistic filling of gaps begins and ends with its attempts to explain apparent design and religious experience in the context of Darwinism and psychology.

In the most notable examples of apparent filling of gaps, the discovery of DNA and the nuclear theory, the new gaps created by their filling are actually worse than the previous gaps.

Within the framework of Darwinism, has there been that long, steady march of reducing gaps? Let me discuss two examples. In the nineteenth century, two gaps caused problems for Darwinists. First, they had no explanation for the mechanism of transmission of traits from one generation to the next. Second, they had no answer to Lord Kelvin's argument that the earth could not be old enough to allow random variations to produce all the apparent design we see, because simple physical arguments showed that the sun could not burn for millions of years.

In the middle of the twentieth century, two scientific breakthroughs occurred, which seemed to solve these problems. Watson and Crick discovered DNA, and the nuclear theory of Bethe showed that stars could burn for millions of years using nuclear fusion. These discoveries apparently filled the gaps with resounding success. Yet within twenty years, both discoveries had raised as many problems as they had solved.

Since the discovery of DNA, scientists have learned that the information stored in DNA is vast. No one today has an adequate explanation for how this highly complicated molecule arose out of nowhere. Also, we do not have an adequate explanation within chemical evolutionary theory for the appearance of the mechanism that gives us a read-out of the information, or for the appearance of methods that replicate information without error, or for the appearance of the delicate balance of repair

and maintenance of the molecular systems that use the information stored in DNA.⁵

The nuclear theory of Bethe showed that stars could burn for millions of years, consistent with the geological record. Yet this nuclear theory had strong implications for cosmology. Many scientists, starting in the 1960s, only a few years after Bethe's work, showed that in order for the stars to burn as long as they do, certain exquisite balances must exist in the fundamental constants of the universe, the now-famous "large numbers coincidences."⁶ Various efforts to explain these coincidences have been made, such as many-worlds and inflation theory.⁷ Each endeavor so far has the status of a framework for attempting an explanation, not an explanation. Few scientists would say that these theories resolve the problems.

Books by people like Behe,⁸ Johnson,⁹ Dembski,¹⁰ and Ross¹¹ have raised serious scientific issues in pointing out the gaps in atheistic evolutionary and cosmological theory. A frequent response to these books is that they have followed an improper mode of discourse, because pointing out gaps is illegitimate. Yet if a reason to reject a gaps argument is the past track record of a steady closing of gaps, it stands to reason to ask when that steady closing of gaps has occurred. In the most notable examples of apparent filling of gaps, the discovery of DNA and the nuclear theory, the new gaps created by their filling are actually worse than the previous gaps.

The design of the universe is just as apparent now as it was in the sixteenth century, or in the first, when Paul wrote: "For since the creation of the world God's invisible qualities—his eternal power and divine nature—have been clearly seen, being understood from what has been made" (Rom. 1:20). Design is obvious at a glance to anyone, and detailed scientific analysis has not changed that fact.

3. Naive Optimism

My last objection to the AGOG position is that it implicitly relies on a naive optimism about the future of science. It reeks of nineteenth-century rationalism and postmillennialism in assuming that the onward steady march of science explains and solves everything. If the twentieth century has taught us anything, it is to be suspicious of those who put all their hope in science as the explainer of everything.

Suppose that my historical criticism above is false, and that actually many Christian apologists in the past have used failures of scientific explanation for things like magnets and comets to argue for the

existence of God, and that science has defeated them at every turn. Does it follow that science must inexorably press on to defeat *every* evidential Christian argument? Perhaps we have lived through a short period of very foolish Christian apologists. Nevertheless, we must still ask whether the failures at explanation before us now, the gaps in the atheistic theory, seem likely to be filled by science. For example, suppose a short-sighted person at the beginning of the twentieth century said that no one can make a building fifty stories high. In a few years, this barrier is passed. Then the person says that, well, no one can make a building one hundred stories high. Science soon makes this possible, too. Then the person says that no one can make a building two hundred stories tall. Does it follow from the track record that science will soon make it possible to have buildings 200, 400, and 800 stories tall, that there is no upper bound to the ability of science to make tall buildings? The failure of naive pessimism does not imply unbridled optimism.

In the twentieth century, we have seen the speeds of cars, the range of humans in rockets, and the height of buildings increase rapidly, only to stop at a natural level. In the nineteenth century, a person might have felt that the speed of sailing ships had no upper bound. Perhaps we are all still enamored with the rapid progress which occurs when a new field is opened, forgetting that science does have limits, even if those limits are higher than we first thought. By the same logic, a Westerner might travel to a remote tribe in South America, show them magnets, penicillin, and radio communication, and after this impressive display, say, "You see that I can do *anything*. I am all-powerful."

Another Version of the AGOG Position

Perhaps some will object that I have distorted the AGOG position in the above discussion. One might give a slightly different version of the AGOG position by arguing that, while it is proper to point out failures of explanation of the atheistic world view generally, it is not proper to point out failures of evolutionary science, because evolutionary science is good science and all good science can be incorporated into the Christian world view. I agree that Christians should value all good science, and in general, failure of science per se to explain things does not support theism. If neither of two theories has an explanation for a given gap, then this cannot count as evidence for either theory. In my prior example of the debate with a colleague about spectral lines, if neither of us can explain the second spectral line, then we both simply have to admit

weakness. Similarly, if neither theist nor atheist scientists can explain magnets, this lack points us neither toward nor away from God.

If one theory makes a successful prediction that the other cannot explain, however, this counts as evidence against the theory which cannot explain it. Both theism and atheism are theories that make falsifiable predictions about things we should see in the realm of science. Specifically, the atheist theory predicts that we should find a mechanism by which all life could have arisen as the result of many simple, uncorrelated causes; Christianity says that the world is explained by a unifying Purpose, and expects that the hand of God should be evident in the world around us (Rom. 1:20).

[Some people might argue] that, while it is proper to point out failures of explanation of the atheistic world view generally, it is not proper to point out failures of evolutionary science, because evolutionary science is good science and all good science can be incorporated into the Christian world view.

How do we expect to see God in the world? I can imagine three possible predictions: (1) we might expect to see exquisite design and balance in the framework of life and the universe; (2) we might expect that many people would have the experience of communing with God; and (3) we might expect many daily, direct, miraculous communications from God. Scientific analysis of our experience seems to falsify the third prediction, which forces a revision of the theory (as is natural in the scientific method) to allow that God may have decided to limit miraculous communications to a few people at a few times. Perhaps, given enough time, science will invalidate the first prediction, too. Is there any reason to preemptively capitulate on this point, however? Do we expect that God should leave *no* fingerprints in the universe?

The present "gap" in the atheistic theory comes from a successful prediction of the theistic theory, that we should expect evidence for exquisite fine-tuning and apparent design. If this observation has no adequate explanation in the atheistic theory, it

must count as a weakness relative to theism. On the other hand, successful demonstration that the observed design is *probable* starting with known simple, uncorrelated causes counts as evidence for atheism. Perhaps we will find some day that God has decided to create all design in this way, via a “fully competent creation,” leaving only the second type of evidence listed above, personal experience. If so, the probable random generation of apparent design would count as a successful prediction of atheism with only a weak theistic explanation, that is, a “gap” in the theistic theory, and would be used triumphantly as such by all atheists.

Failures of evolution per se do not necessarily argue against atheism. Many Christians embrace some model of theistic evolution. Evidence for animals changing their forms, an earth millions of years old, or common aspects of animals and humans does not intrinsically support either atheism or theism. However, a successful demonstration that all the design we see can have occurred entirely through uncorrelated, simple causes would count as a successful prediction of the atheist theory. Even a theistic evolutionary model naturally leads to the prediction that the overall system will exhibit fine-tuning which is not explicable within the atheistic world view.

Is the AGOG Position Fearful of Falsifiable Predictions?

I specifically included a falsified prediction in the above list, the expectation of many miraculous communications from God, because so many theistic apologists seem to be afraid of making falsifiable predictions. We seem to have the attitude that one falsified prediction will cause the whole theistic framework to come crashing down, so therefore we better not make any predictions. Science does not work that way, and neither should apologists. A falsified prediction often forces a revision of a theory without rejection of the whole framework. Christians must have the humility to revise their theology, thus maturing their understanding without discarding their entire framework.

Lord Kelvin strongly argued that the sun could not have the age of millions of years required by evolutionists, implying the prediction that the earth and sun should look relatively young. This prediction has been falsified; yet, the falsification led to greater problems for the atheist world view. Should Kelvin have never argued as he did? In the same way, it is perfectly reasonable for young-earth creationists to have made the falsifiable prediction

that the earth should look young. The problem today is that they seem to be unable to acknowledge that the data long ago falsified that prediction; there are too many gaps of explanation in Flood Geology. In refusing to admit this, Flood geologists are no different from some secular physicists I have known who refuse to admit that their theories have failed, clinging to tenuous explanations of the data rather than admitting the obvious. Science becomes pseudoscience when the sponsors of a theory refuse to admit a falsification and force all facts into conformity with their theory. It is *not* pseudoscience if they base their predictions on their interpretations of the Bible (or, for that matter, if they base their predictions on Peanuts cartoons), *if* they are willing to admit a falsified prediction under normal standards of evidence.

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Some people have asked me, “What if a new scientific result comes along next year which explains all the large-numbers coincidences as the work of uncorrelated, simple natural forces? Where would you be then?” Of course this would weaken my evidential argument, but I do not lose sleep over that possibility. By the same token, one can ask, “What if a new scientific result comes along next year which proves Flood Geology and Young-Earth Creationism?” No one can prove this will not happen, but I doubt it. In either case, one is hypothesizing a completely unknown scientific theory on bare faith. I do not know why I should expect the large-numbers-coincidence gap to be filled before the Flood Geology gap.

Perhaps God has not given us evidence of design in nature, and has made all things to appear as if they arose with no design or fine-tuning. After all, God does not need to give us all the evidence we may want, as we see in the fact that he does not generally speak miraculously to the public, or write “GOD MADE ME” in English on the side of every

cow. Yet I can think of no a priori reason to rule out the possibility that he has put observable fine-tuning into nature, and that if we see such, that we should point out this fact to atheists.

As in many theoretical debates, certain data may weaken one theory but lend support to more than one alternative theory. Not only Christianity, but also Deism, Islam, and New Age theories may find support in evidence of design and fine-tuning. That is well and good; other evidence will have to distinguish between these theories. In the scientific world, no one complains if an observation eliminates only one of several theoretical possibilities.

Let us therefore happily point out the gaps in atheistic science, while also admitting the gaps in our own explanations if such arise. To paraphrase a trite old saying, "Better to have predicted and lost than never to have predicted at all." *

Notes

¹E.g., D. F. Siemens, Jr., *Perspectives on Science and Christian Faith* 49 (1997): 196; W. R. Hearn, *Being a Christian in Science* (Downers Grove, IL: IVP, 1997), 75; W. Christopher Stewart, *Reason For the Hope Within*, M. J. Murray, ed. (Grand Rapids, MI: Eerdmans, 1999), 321.

²One may distinguish between "trivial" and "nontrivial" explanations, however, by their degree of predictiveness. The trivial explanation, "It is that way just because God wants it to be that way," has no gaps of explanation but is not too helpful as a predictive theory. Some opponents argue that all theistic theories of design and purpose in nature are like this and therefore are fatal to science. I can see no intrinsic reason why this must be the case. One could equally well propose a trivial atheistic explanation of everything, "It's that way just because it is." (Or, "just because evolution made it that way.") A theory of design can in principle be predictive and quantitative. For example, a computer-chip manufacturer which takes apart a chip made by a rival company proceeds on the assumption that the circuits are well designed; this does not lead them to end their investigation, but rather, drives their study of the chip. The good-design assumption leads to specific predictions and applications, e.g., the prediction that it is unlikely to find wires that waste metal and take up space but serve no purpose, so that there should be few wires which are dead ends, with the application that studying any particular wire is likely to be useful. A bad-design assumption (e.g., that the chipmaker made many random circuits and then just picked out the ones that worked) would give very different predictions.

³D. Snoke, "The Problem of the Absolute in Evidential Epistemology," *Perspectives on Science and Christian Faith* 47 (March 1995): 2-22, 3.

⁴*Ibid.*; and D. Snoke, "Toward a Unified View of Science and Theology," *Perspectives on Science and Christian Faith* 43 (September 1991): 166-73, 166.

⁵M. J. Behe, *Darwin's Black Box: The Biochemical Challenge to Evolution* (New York: Free Press, 1996); R. Shapiro, *Origins: A Skeptic's Guide to the Creation of Life on Earth* (Summit Books, 1986); J. D. Barrow and F. Tipler, *The Anthropic Cosmological Principle* (Oxford: Oxford University Press, 1987), 565; P. Johnson, *Darwin on Trial* (Downers Grove, IL: IVP, 1991); J. Horgan, "In the Beginning," *Scientific American* (February 1991): 100-9, 100; and John Leslie, "Cosmology, Probability, and the Need to Explain Life," in *Scientific Explanation and Understanding*, N. Rescher, ed. (Pittsburgh, PA: University of Pittsburgh, Center for Philosophy of Science, 1983), 53-82.

⁶P. C. W. Davies, *The Accidental Universe* (Cambridge: Cambridge University Press, 1982); J. D. Barrow and F. Tipler, *The Anthropic Cosmological Principle*, 408-12; and R. Collins, "A Scientific Argument for the Existence of God: The Fine-Tuning Design Argument," in *Reason for the Hope Within*, M. J. Murray, ed. (Grand Rapids, MI: Eerdmans, 1999), 47-75.

⁷D. Snoke, "The Apologetic Argument," *Perspectives on Science and Christian Faith* 50 (June 1998): 108-21, 108.

⁸M. J. Behe, *Darwin's Black Box*.

⁹P. Johnson, *Darwin on Trial*.

¹⁰W. A. Dembski, ed., *Mere Creation* (Downers Grove, IL: IVP, 1998).

¹¹H. Ross, *The Fingerprint of God*, 2d ed. (Orange, CA: Promise, 1991).

Upcoming ASA Annual Meetings

Aug. 2-5, 2002: Pepperdine University,
Malibu, CA
"Christian Pioneers in Science"
Program Co-chairs: Ted Davis, Sara Miles
Local Arrangements Chair: Stanley Moore

July 25-28, 2003: Colorado Christian University,
Lakewood, CO
Theme: Cosmology
Program Chair: Jennifer Wiseman
Local Arrangements Chair: David Oakley

July 23-26, 2004: Trinity Western University,
Langley, BC Canada
Theme: Neuroscience
Canadian Program Chair: Heather Looy
Local Arrangements Chair: Judith
Toronchuk

Aug. 5-8, 2005: Messiah College,
Grantham, PA
Theme: Energy, Conservation and the
Environment
Program Chair: Kenell Touryan
Local Arrangements Co-chairs: Ted Davis and
Jerry Hess

July 28-31, 2006: Calvin College,
Grand Rapids, MI
Local Arrangements Chair: Hessel
Bouma III