

In favor of God-of-the-gaps reasoning

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Abstract

I argue that rejection of “God of the gaps” argumentation 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.

I have read the ASA journal and participated in discussions of science and Christianity for over 15 years now, and during this time, I have found that while ASA members disagree over many things, certain unquestioned points of agreement flow through all our discussions. In particular, I have found that no matter what the discussion, 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 so? In this essay 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, i.e. “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, and so the gaps where one may hide God have shrunk. Therefore 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.

The first objection— normal rules of evidential discourse

On the face of it, the AGOG position seems strange when viewed from the perspective of normal scientific discourse. We have two competing theories of something. In deciding between these two 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 in the world not? It is perfectly normal in scientific discourse to point out the weaknesses of theories, 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.

This can be seen in a typical example from science. In the normal course of my scientific research, I have often had discussions in which I proposed a model for some system, for example, that a spectral line can be understood as arising from a certain type of electron motion, and another scientist called my theory into question by pointing out a failure of explanation. I can imagine a conversation:

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

Friend: “But if that is true, shouldn’t the energy of that second line also agree with your calculation?”

Suppose I replied, “You are pointing out a gap of explanation in my theory. That is a ‘gaps’ argument and therefore 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 and therefore 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, and the other says that the ground of the universe is impersonal, that there is no God. Don’t we want to judge between these theories based on their explanatory power? Certainly, atheists seem to

have no qualms with pointing out “gaps” in the theistic theory, e.g. 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 like the apparent design of life and the universe, the nearly-universal desire among people to worship something, and so on?

I am being deliberately vague about what constitutes an “explanation.” Many philosophers have dealt with this question without agreement; clearly, an explanation which satisfies one person may not work for another person. At the most basic level, an explanation is a story which satisfies the hearer, for whatever reason. Within various groups of people, there are common senses 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 others only teleological “why” explanations are satisfying; perhaps some people only like stories with happy endings [2].

Certainly if another person has different criteria for what makes a satisfying explanation, I will have difficulty convincing him or her of my theory, but what surprises me, in the case of many Christian apologists, is the rejection of all attempts to discuss failures of explanation even in areas where all parties *do* share a common sense 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, still we can agree that the atheistic theory has failed on its own terms on this point, and that this constitutes a weakness. Lack of explanation can weaken a theory even when no acceptable rival theory seems available; not only that, 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 20th century, but even those who rejected it 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.

Some have said that arguing *against* a theory does not argue *for* another theory, and therefore pointing out gaps in atheistic thought does not support theism. This is silly, certainly 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.

My first objection to the AGOG position is therefore simply that it violates the normal rules of evidential discourse, in which people often point out the unexplained entities in each other’s theories. Some people reject evidentialism, of course, 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.

The second objection— a false premise about history

As I have previously discussed [3, 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 shellshocked defensive position. This brings me to my second objection to the AGOG position. I am not a historian, but I believe it is worth asking whether the premise of the AGOG position is historically valid. What specific gaps did people used to use to argue for the existence of God, which atheistic science now explains? I can certainly think of some triumphs of explanation in science, such as Maxwell's equations, which explained the mysteries of magnets and prisms, or the Copernican/Newtonian theory, which explained the orbits of the planets and comets. Did anyone ever argue for the existence of God because we didn't 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 those 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 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 2000 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 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.

The second line received its challenge from Darwinism, and the last line received its challenge from Marx and Freud. These provided explanations for apparent design and religious experience within the framework of the atheist world view. Yet over 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 want to say that these explanations are beyond doubt, but they cannot argue that these theories come on the heels of numerous other scientific theories which 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 the light of this track record of success. Yet 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.

Within the framework of Darwinism, has there been that long, steady march of reducing gaps? Let me discuss just two stories. In the 19th 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 the sun could not burn for millions of years.

In the middle of this 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 apparently filled the gaps with resounding success. Yet within twenty years, both discoveries had raised as many problems as they had solved. The information stored in DNA is vast, and no one today has an adequate explanation for how this highly complicated molecule arose out of nowhere. Not only appearance of the molecule, but the appearance of the mechanism of readout of the information, the appearance of methods of replication of the information without error, and appearance of the delicate balance of repair and maintenance of the molecular systems using the information stored in DNA have no adequate explanation within chemical evolutionary theory today [5, 6, 7, 8, 9, 10].

On the second question, the nuclear theory of Bethe showed that stars could burn for millions of years, consistent with the geological record. Yet this nuclear theory has strong

implications for cosmology. Many scientists, starting in the 1960's 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" [11, 12, 13]. Various attempts to explain these coincidences have been attempted, such as many-worlds and inflation theory [14], but each of these so far has the status only of a framework for attempting an explanation, not an explanation, and no scientist would say these theories resolve the problems.

Books by people like Behe [5], Johnson [8], Dembski [15] and Ross [16] have raised serious scientific issues in pointing out the gaps in atheistic evolutionary and cosmological theory. The response to these books seems always to be that no matter what they say, 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 gaps created by their filling are actually worse now than the previous gaps. The design of the universe is just as apparent now as it was in the 16th 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) It is obvious at a glance to anyone, and detailed scientific analysis has not changed that.

The third objection— 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 19th-century rationalism and postmillennialism in assuming the steady march of science onward in the explaining and solving of everything. If the 20th 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 happen to have lived through a short period of very foolish Christian apologists. 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 foolish person at the beginning of the 20th century said that no one can make a building fifty stories high. In a few years, this barrier is passed. Then the foolish 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 200 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 20th 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 19th 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. One might give a slightly different version of the AGOG position, arguing that it is proper to point out failures of explanation of the atheistic world view generally, but that it is not proper to point out failures of evolutionary science, because all good science can be incorporated into the Christian world view, and evolutionary science is good science. 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 above example of the debate with a colleague about spectral lines, if neither of us can explain the width of the spectral line, then we both simply have to admit weakness; similarly, if neither theist nor atheist scientists can explain magnets, this points us neither toward nor away from God.

If one theory makes a successful prediction which 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 of life

can 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 (Romans 1:20).

How do we expect to see God in the world? I can imagine three possible predictions. First, we might expect to see exquisite design and balance in the framework of life and the universe; second, we might expect that many people would have the experience of communing with God; and third, 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 would count 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, i.e., 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 sort of model of theistic evolution. Evidence for animals changing their forms, or for an earth millions of years old, or for common aspects of animals and humans, do not intrinsically support either atheism or theism. But 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 atheist world view.

Is AGOG fear 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 doesn't 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, i.e. to mature, without throwing the baby out with the bathwater.

As mentioned above, for example, 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, as discussed above, in the long run, the falsification led to even 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.

Some people have asked me, “What if a new scientific result came along next year which explained 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 don’t lose sleep over that possibility. By the same token, one can ask, “What if a new scientific result came along next year which proved Flood Geology and Young-Earth creationism?” No one can prove this will not happen, but I doubt it will. In either case, one is hypothesizing some completely unknown scientific theory on bare faith. I don’t 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. 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 of 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.”

References

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

- [2] One 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 which take up metal and 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 chip maker made many random circuits and then just picked out the ones that worked) would give very different predictions.

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