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DNA by Design?

Stephen Meyer and the Return of the God Hypothesis

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In his keynote address at a recent Intelligent Design (ID) conference at Biola University, ID leader William Dembski began by quoting "a well-known ID sympathizer" whom he had asked to assess the current state of the ID movement. Dembski explained that he had asked because, "after some initial enthusiasm on his part three years ago, his interest seemed to have flagged" (Dembski 2002). The sympathizer replied that

> [t]oo much stuff from the ID camp is repetitive, imprecise and immodest in its claims, and otherwise very unsatisfactory. The 'debate' is mostly going around in circles. (Dembski 2002)

Those of us who have been following the ID or "Wedge" movement since it coalesced around point man Philip Johnson during the early 1990s reached much the same assessment of its arguments years ago. In something of an understatement, Dembski told his supporters (the conference was closed to critical observers) that "the scientific research part of ID" was "lagging behind" its cultural penetration. He noted that there are only "a handful of academics and independent researchers" currently doing any work on the scholarly side of ID, and offered some suggestions to try to rally his troops[1] (Dembski 2002). We will have to wait to see if anything comes of this call, but judging from ID'S track record, it seems unlikely. This chapter is a look back at nearly a decade and a half of repetitious, imprecise, immodest, and unsatisfactory arguments. So that our review does not entirely circle over old ground, I propose that we look at the ID arguments through the writings of Stephen C. Meyer. Meyer is certainly one of the core workers Dembski had in mind, but his work has so far received little critical attention.

Meyer is the longtime director of the Discovery Institute's Center for the Renewal of Science and Culture,[2] which is the de facto headquarters of the Wedge movement. With publications going back to the mid-1980s that helped to lay the groundwork for the Wedge arguments, Meyer was one of

the earliest leaders of the movement and has continued to play a central role. As we will see, he had already published an attack on evolution that charged it is based upon naturalistic assumptions - the centerpiece of the ID attack that Philip Johnson would begin to press in 1991 - even before he was introduced to Johnson in 1987 (Meyer 2001). Meyer was coauthor of a special philosophy section in *Of Pandas and People,* the ID textbook supplement for junior high and high school biology courses that tries to make the case that ID is legitimate science (Hartwig arid Meyer [1989] 1993). He also takes a leading role in the movement's persistent lobbying to get ID into the public schools, testifying at congressional and other hearings.[3]

As part of ID'S lobbying efforts, Meyer is an active writer of op-ed pieces. In two editorials written in May and July of 1996 - "Limits of Natural Selection a Reason to Teach All Theories," in the *Tacoma News Tribune* (Meyer 1996b) and "'Don't Ask, Don't Tell' in Biology Instruction," in the *Washington Times* (Meyer 1996a) - Meyer (in the first article) defended teaching anti-evolutionism in the Sultan, Washington schools and (in the second) attacked the way California's science guidelines recommended that teachers help students with religious objections to science. Reading these and other op-ed pieces gives a clear picture of the points that the Wedge wants to hammer home.

In both articles, Meyer faults biology textbooks for presenting only "half of the picture," leaving out information about the Cambrian explosion that, he says, confirms a pattern of abrupt appearance rather than an evolutionary process. These texts purportedly failed to define "evolution" adequately - it can refer, he claims, to anything from "trivial" microevolutionary change to "the creation of life by strictly mindless, material forces" - and they failed to mention scientists who reject evolution in favor of "alternative theories," such as Intelligent Design. He cites ID theorist Michael Behe and his idea that the "irreducibly complex" bacterial flagellum provides evidence against the "superstitions" of the self-assembly of life. He criticizes biologists (mentioning Douglas Futuyma and Kenneth Miller) who, he says, make no attempt to hide the anti-theistic implications of Darwinism.

Meyer does not just make the same points in both articles; the paragraphs discussing these main ideas, comprising over two of the three pages of the July article, are actually copied word for word from the May article. We will reply to Meyer's other points along the way, but here let us just note that Darwinian evolution has "anti-theistic" implications only for those who think they already know, rather specifically, what God did and did not do. Meyer's misrepresentation of Miller makes sense only given ID'S own narrow view, since Miller is a Christian theist who explicitly rejects the contention that Darwinian evolution is anti-theistic (Miller 1999).

In a 1998 op-ed piece in Spokane's *Spokesman-Iieview* — "Let Schools Provide Full Disclosure" (Meyer 1998) - Meyer gave advice to school board

members in Post Falls, Washington, some of whom wanted to accommodate parents who were pressing to teach creationism. Biblically based Young Earth creationism would be "legally problematic," he said, but the Intelligent Design approach could probably escape a legal challenge. Again, following this introduction, most of the paragraphs are repeated verbatim from the earlier articles, without citation.

Nor has Meyer changed his cut-and-paste approach in subsequent years.[4] A few weeks ago (as I write this), most of the same core paragraphs were copied into yet another article by Meyer, titled "Darwin Would Love This Debate" (Chapman and Meyer 2002) in the June 10, 2002, issue of the *Seattle Times*. This time Meyer addresses the controversy over the proposal under review by the Ohio Board of Education to include ID in the science curriculum in that state.[5] Interestingly, a couple of minor changes do appear in these paragraphs over the course of the six years since the first piece appeared, which help us to address a second point in Meyer's challenge.

In the 1996 op-ed pieces, Meyer claimed that "none of the standard high school biology texts even mentions the Cambrian Explosion" and suggested that science educators had omitted it deliberately. "Scientific literacy," he opined "requires that students know all significant facts whether or not they happen to support cherished theories" (Meyer 1996a, 1996b). The implication is that scientists are withholding information about the Cambrian explosion in order to protect evolutionary theory. However, it is hardly the case that scientists view the Cambrian radiation as an embarrassing, unsolvable problem for evolution, as ID theorists purport, and the suggestion of a conspiracy of silence is absurd. One can find any number of discussions of the Cambrian radiation in the scientific literature, and new studies regularly increase our understanding of that interesting evolutionary episode. This is no skeleton in the closet, kept hidden away from students, as even Meyer is increasingly forced to admit. In his 1998 op-ed piece, he changed "none of the standard high school biology texts" to "only one"; in the 2002 piece, he was forced to modify it to "few." Science, we see, is quite open about its theories.

ID theorists, by contrast, are very close-mouthed about their own views. If evolution really cannot hope to explain the Cambrian explosion, and ID theorists can do better, one would expect them to show how. However, no "alternative theory" is forthcoming. ID leaders who are Young Earth creationists - such as Paul Nelson, Percival Davis, and others - do not even accept the scientific dating of the Cambrian. However, even the Old Earthers, such as Behe and presumably Meyer, have offered no positive account.

Is their view that the "at least fifty separate major groups of organisms"[6] (note Meyer's pointed claim of separateness) were separately created at that time? What about those phyla that arose before or afterward? And why the invariable focus at the arbitrary level of the phylum; isn't it rather the origin

of species, which is what Darwin explained, that is more pertinent? What about the vast numbers of species that arose in the subsequent half-billion years, or in the prior three billion? According to ID theory, even the smallest increase in genetic information must be the result of the "insertion of design." Although their view would thus seem to require countless such insertions, they decline to say where, when, or how this happens. The biologist Kenneth Miller asked Dembski and Behe this question point blank during a debate at the American Museum of Natural History, and neither was willing to take a stand on even one specific point in time at which this supposedly occurred (Milner et al. 2002).

The pattern of vagueness and evasion regarding the specific theoretical commitments or possible tests of ID is pervasive. In response to my direct questions during the same debate, Behe refused to answer whether a proposed experiment would suffice to identify whether a system met his notion of "irreducible complexity" (he said he smelled a trap), and Dembski would not even take a stand on the age of the Earth (Milner et al. 2002). One could cite numerous similar examples. I have not seen the chapter that Meyer is writing on the Cambrian explosion for the present volume, but I encourage readers to check whether he departs from the pattern and offers any specific positive account. If ID is to have even a shot at being a real scientific alternative, one should expect to see some precise, testable (and eventually tested) hypotheses that answer the obvious questions: what was designed and what wasn't; and when, where, how, and by whom was design information supposedly inserted?[7]

Although his Discovery Institute biography describes Meyer as the author of "numerous technical articles," the group does not list or include any of these in its database of his writings, as one would expect if they involved ID research, but instead calls attention to his op-ed pieces. However, his influence runs far deeper than this would suggest. As one of the philosophers who dominate the ID movement, Meyer's work on the epistemological presuppositions of the evolution/creation debate has helped to define the core features of the movement from its very inception.

In "Scientific Tenets of Faith," Meyer argues that science is based upon "foundational assumptions of naturalism" that are as much a matter of faith as those of "creation theory" (Meyer 1986). His argument prefigures by several years the argument that would make Philip Johnson famous, that scientific naturalism is akin to religious dogma and that the assumptions of creation theory should supplant it.

Meyer makes the same error of imprecision that Johnson later would make on this point, failing to distinguish metaphysical from methodological naturalism. The former holds that the world is a closed system of physical causes and that nothing else exists. This rebuts another of Meyer's charges in his op-ed pieces, because evolutionary biology makes no claim about "strictly

mindless, material forces" in such a metaphysical sense. Science holds to naturalism only in the more modest methodological sense - that is, in not allowing itself to appeal to miracles or other supernatural interventions that would violate natural causal regularities - and remains neutral with regard to metaphysical possibilities. Moreover, these methodological constraints of order and uniformity are not held dogmatically, but are based upon sound reasons that ground evidential inference (Pennock 1996).

Unmindful or perhaps unaware of this crucial distinction, Meyer writes of the "necessity of making intelligent foundational assumptions" that can "lend explanation and meaning to the necessary functions of Inquiry" (Meyer 1986), but thinks that these are just a matter of faith. As noted, he thinks the assumptions of creation theory are at least as good as those of science. Significantly, in making this point, Meyer draws a direct connection to the battle in Arkansas during the early 1980s regarding legislation mandating balanced treatment of evolution and a purportedly scientific theory of creation. Meyer claims that the naturalistic assumptions underlying science put it on a par with creation theory.[8]

> [T]hese foundational assumptions are not unlike the much scorned "tenets of faith" whose detected presence in creation theory first disqualified it as legitimate science in an Arkansas federal court three years ago. This observation neither suggests nor repudiates a defense of creation theory as legitimate science. It does, however, assert that from the definition offered by the American Civil Liberties Union... science itself does not qualify as legitimate science. (Meyer 1986)

By neglecting the distinction noted above, Meyer fails to see that scientific naturalism is not taken on faith; rather, it is a working hypothesis that is justified, in part, by science's continued success. It is conceivable that in the long run it will fail, but so far the method shows no signs of weakening and every sign of increasing strength.

The claim of generic equivalence (which we see is false) with regard to the need for *some* presuppositional basis is only the initial part of the ID program. Rejecting naturalism and any evolutionary account as a basis for the possibility of human knowledge, Meyer and other ID theorists turn to the alternative biblical presuppositions that they believe must be put in place in order to ground claims of truth:

> Given the current and historical difficulty human philosophic systems have faced in accounting for truth as autonomous from revelation, scientists and philosophers might be most receptive to systems of thought that find their roots in Biblical theology. (Meyer 1986)

That is to say, Meyer doubts that there could be any warranted basis for truth claims apart from revelation and Christian assumptions. Like ID advocate Alvin Plantinga (whose entire epistemology is based upon a Christian presuppositionalism), Meyer holds that human knowledge can be justified

only on the assumption that God designed the human mind and that it transcends the material world.[9] He writes:

> TheJudeo-Christian scriptures have much to say about the ultimate source ofhuman reason, the existence ofa real and uniformly ordered universe, and the ability present in a creative and ordered human intellect to know that universe. Both the Old and New Testaments define these relationships such that the presuppositional base necessary to modern science is not only explicable but also meaningful. (Meyer 1986)

Appealing to a "real and uniformly ordered universe" is just what methodological naturalism says scientists must do, but ID theorists are wrong to think that one must ground this constraint in scripture. Indeed, taking their biblical route actually subverts that necessary base of presumed order and uniformity, because it assumes, to the contrary, that it is broken by the Designer's creative interventions.

We shall return to a consideration of ID theory's proposal that a "theistic science" (asJohnson calls it) is a better presuppositional basis for warranted knowledge, but first let us briefly examine the claim that such a scriptural assumption is necessary not only to .make science explicable, but also to make it "meaningful."

Why does all this matter? In *Tower of Babel* (Pennock 1999, Chapter 7), I explained howJohnson and others in his movement see not only a point of science but also the meaning of life itself as being at stake. Among other things, they believe that if evolution is true, then there is no ground for moral values. This is not a peripheral issue involving their motivation, but an essential part of their philosophical argument. That God created us for a purpose is, for them, the necessary foundation for true human morality and proper social order. At the conclusion of the article just considered, immediately following his statement about the scriptural presuppositional grounding of their view of science, Meyer adumbrates the moral issue:

> Moreover all of us would do well to reflect on the scriptural axiom that "in Him all things hold together," and further reflect on the serious consequences to a society and culture that divorce spiritual thought not only from moral considerations but scientific ones as well. (Meyer 1986)

We find a further elaboration of this Christian assumption of the ID view in an article Meyer wrote in collaboration with Charles Thaxton, another important early leader of the ID movement.

In "Human Rights: Blessed by God or Begrudged by Government?," Thaxton and Meyer focus not on abortion, divorce, homosexuality, or the other purported evils thatJohnson discusses, but on the notion of human dignity as the basis for human rights. They see human dignity as arising

necessarily from the idea that human being are the glory of God's Creation. Here is how they make the argument:

> Historically, Western society has derived its belief in the dignity of man from its Judeo-Christian belief that man is the glory of God, made in his image. According to this view, human rights depend upon the Creator who made man with dignity, not upon the state. (Thaxton and Meyer 1987)

This perspective and language would show up several years later, in the "Wedge Document" - the manifesto from the Center for the Renewal of Science and Culture, by then under Meyer's directorship, that laid out the ideological foundations and strategic plans of the ID movement. Thaxton and Meyer's article continues by contrasting the traditional Judeo-Christian view with what they say is the contemporary scientific view "that promulgates a less exalted view of man," in which he is merely a material being "cast up by chance in an... impersonal universe" (Thaxton and Meyer 1987). Their thesis that the modern scientific worldview is a barren materialism that stands in opposition to the Judeo-Christian view also appears as the key point of the ID Wedge manifesto, which pledges "nothing less than the overthrow of materialism and its cultural legacies" and the renewal of "a broadly theistic understanding of nature."[10]

Thaxton and Meyer say that according to the modern view, "only man's material complexity distinguishes him from the other biological structures that inhabit the universe" (Thaxton and Meyer 1987), and they claim that this is inadequate to ground human rights. They have no truck with the possibility that moral rights could apply to nonhuman animals. Indeed, they don't want to consider man an animal at all; they believe it is critical that there be something that is "distinctively human," for otherwise it would "relegat[e] man to the level of animals" (Thaxton and Meyer 1987). Their goal of keeping human beings categorically distinct from animals goes hand in glove with their theological grounding of dignity, and from this it is for them but a small step to the rejecdon of biological evolution.

Thaxton and Meyer briefly consider the argument of those who promote "merely reiterating the Judeo-Christian doctrine of creation" as a "useful fiction," but reject it on the ground that no merely fictional doctrine will suffice to "rescue man from his current moral dilemma" (Thaxton and Meyer 1987). So, what will save man? Not belief alone. Nothing less than the *truth of* Divine creation. They put it this way:

> Judaism and Christianity do not teach that the doctrine of man's creation in the Divine image establishes his dignity. They teach that the fact of man's creation has established human dignity. (Thaxton and Meyer 1987)

It is this teaching upon which their entire argument turns. To emphasize the point, they immediately restate it as their central, major thesis:

> Only if man is (in fact) a product of special Divine purposes can his claim to distinctive or intrinsic dignity be sustained. (Thaxton and Meyer 1987)

This religious assumption, in one variation or another, stands at the very center of the ID worldview. It is behind Johnson's notion of "theistic realism." It is behind Dembski's insistence that the human mind transcends any possible material instantiation. It is the reason that ID can brook no compromise with evolution, since they see evolution as incompatible with what they take to be the basic fact of man's special creation. The "ill-conceived accommodation," as Dembski puts it (Dembski 1995, 3), that theistic evolutionists make is, according to ID theorists, nothing less than an intolerable surrender of their foundational assumption.'

Thaxton and Meyer close their article with a purported contrast between the way human rights are honored in the United States and in the Soviet Union; they are inalienable here and dispensable there, they claim. This difference, they argue, is a direct result of a difference between a government based upon Christian theology and one grounded in scientific materialism. They write, "Soviet indifference to human rights is reasoned correctly from an erroneous perception of man called Marxism - a materialist perception [sic] that Karl Marx himself held to be scientific" (Thaxton and Meyer 1987). On the other hand, they believe that America is built on the idea that "dignity is built into man by his Creator" (Thaxton and Meyer 1987). They worry, however, that the acceptance of evolution and naturalism will undermine these values here and place us in the same position as the Soviets.

> The orthodoxy of Judaism and Christianity contends that man has dignity because he has been created in the image of God. If the orthodox view is false, as is now widely assumed in the academic and legal professions, then one wonders how long it will be until we in the West reason correctly from a strictly scientific perception [sic] of human nature. (Thaxton and Meyer 1987)

There are more problems with Thaxton and Meyer's argument than we have time even to broach here. Even if one were to accept their cartoon analysis of the difference between the United States and the (now former) Soviet Union, there seems to be no good reason to think that a scientific view of human nature (or even metaphysical materialism, which is not the same thing) is incompatible with human rights. Nor does history bear out the implied claim that Judeo-Christian theism necessarily leads to a respect for human rights. More significantly, from a moral point of view, it seems quite wrong to accept their premise that moral rights are limited to human beings in contrast to all other beings. However, rather than pursue these points, I want to mention two other serious problems that are more directly related to our present concerns.

The first is the faulty assumption that being specially created in the image of God, or for some divine purpose, is sufficient to ground moral value. Ironically, their mistaken view is related to what is known as the naturalistic fallacy, though in their particular case it might be better termed the *supernaturalistic fallacy*. Even if one was created for X, it does not follow that one ought to do X. If one is divinely created in the image of an angry and

vengeful God, it does not follow that one ought to be angry and vengeful, or that one has moral worth by virtue of being created in such an image. Similarly, one would not have moral worth by virtue of being divinely created in a loving and merciful image, but rather by being loving and merciful. Furthermore, one would be praiseworthy for having such moral virtues, irrespective or whether one is an evolved or a supernaturally created being. Another way to put the problem is that Thaxton and Meyer commit a version of the genetic fallacy. Moral dignity is a function of what virtues one has and how one comports oneself, not of how one came to be. Similarly, moral rights (and concomitant responsibilities) do not depend upon one's origins, but upon one's capacities and relationships. In opposition to this, Thaxton and Meyer's position is akin to the archaic view that the right to govern can only be granted by God - rather than, say, beingjustified by the will of the governed.

The second problem involves the way the Wedge Document indicts evolution in relation to the moral issue. Suppose we grant for the sake ofargument that dignity and rights can bejustified only if they are granted by God. Why do ID theorists think that that idea is threatened by evolution? It is because they see "Darwinism" as being on a par with Marxism. They use the term to mean "fully naturalistic evolution," by which they mean a metaphysical position that denies the existence of God. However, as discussed earlier, Darwinian evolution is a scientific view, not a metaphysical one. It is not atheistic, but rather agnostic about the existence of God. Evolutionary biology is naturalistic (or materialistic) in exactly the same way that physics is - or chemistry, or medicine, or plumbing.

If one steps back and asks what the philosophical import of Darwinian evolution is for classical arguments for the existence of God, the only thing one can say is that it shows that there is no need to appeal to divine design to explain biological adaptations. Putting this another way, in canvassing the modal options, it does not tell us that God is impossible, but only that God is not necessary; it leaves God as a possibility in which one may believe on faith. This conclusion about divine design is unacceptable to ID theorists. As we shall see, their entire argument aims to establish the necessity of transcendent design.

Meyer's most systematic treatment of the design inference was published recently in the *Journal of Interdisciplinary Studies*. "The Return of the God Hypothesis" (Meyer 1999) was the lead article in its issue of the journal and received the Oleg Zinam Award for best essay in *JIS* for 1999, so it is recognized as an important articulation of the ID position.[11]

Meyer begins by recounting a story about Napoleon Bonaparte's exchange with Pierre-Simon Laplace regarding the latter's *Treatise on Celestial Mechanics*. In reply to Bonaparte's question as to why God did not figure in his account, Laplace reputedly answered that he had had no need of

that hypothesis. Meyer emphasizes that Laplace's "fully naturalistic account of celestial origins" departed from a "long-established theistic orientation," such as had been exemplified in Isaac Newton's account, which explained the solar system by appeal to "divine design" (Meyer 1999, 1).

Once again, the phrase "fully naturalistic account" signals the Wedge's metaphysical target. Meyer explains how science since Laplace seemed to support a "materialistic or naturalistic" worldview rather than a theistic one, by showing how matter "could in effect arrange itself without a pre-existent designer or Creator" (Meyer 1999,2). By the close of the nineteenth century, he states, "both the evidential and philosophical basis of theistic arguments from nature had seemingly evaporated. Neither science nor philosophy had need of the God hypothesis" (Meyer 1999, 2). The Wedge movement hopes to bring death to materialism by reasserting the necessity of the God hypothesis.[12]

Meyer argues that it was a mistake for natural theologians to retreat in the face of science to the idea that design was located in the laws of nature, rather than in such "complex contrivances that could be understood by direct analogy to human creativity" (4), because it led to the relegation of divine design to the status of merely subjective belief. He explains:

> One could still believe that a mind super-intended over the workings of nature, but one might just as well assert that nature and its laws existed on their own. Thus, by the end of the nineteenth century, natural theologians could no longer point to any specific artifact of nature that required intelligence as a necessary explanation. As a result, intelligent design became undetectable except through the eyes of faith. (4)

Much of this summary is quite correct, though contemporary theologians would probably argue that it is not a mistake, but rather far more proper from a religious point of view, to think that divine design must be accepted on faith instead of upon so-called "evidences" (a term from creation science that Meyer uses regularly). Natural theology, from this perspective, misunderstands the essence of religion in trying to emulate the natural sciences. The very definition of faith and its religious significance lies in believing without evidence, or even in spite of evidence to the contrary.

Another, indirect advantage of declining to conceptualize God as a scientific hypothesis is that it avoids pitting religion and science against one another. Meyer acknowledges this, noting that the standard twentieth-century theological position has been to deny a conflict between science and religion, most often by taking them as having complementary, nonoverlapping teachings. In keeping with the ID program, however, Meyer rejects any such accommodation. He aims to revive the earlier view that science and theistic belief are "mutually reinforcing" (3). Nor does he stop with a generic theism. The goal, as he puts it, is to show that "the testimony of nature (or science) actually supports important tenets of theism or the Judeo-Christian religion" (2).

So how does ID theory propose to do this? By reasserting the design argument, but this rime with reference to a new set of contrivances that they claim to be inexplicable in principle by any naturalistic metaphysics, but that are purportedly easily explained by biblical theism.

Meyer first pays homage to the classic design argument from William Paley's *Natural Theology,* noting how he catalogued systems "that suggested the work of a superintending intelligence" by virtue of their "astonishing complexity and superb adaptation of means to ends," which purportedly "could not originate strictly through the blind forces of nature" (3-4). But rather than repeat Paley's examples, most of which sound ridiculous today, Meyer cites more recent puzzles from cosmology, physics, chemistry, and biology. He touts the "staggering" implications of the Big Bang, which

> provide [s] a scientific description of what Christian theologians have long described in doctrinal terms as *creatio ex nihilo* - creation out of nothing (again, nothing physical). (8)

Meyer argues that ID theory supports "a Judeo-Christian understanding of Creation" (26) over all other metaphysical views. He argues that the Big Bang singularity is sufficient to establish Christian theism over naturalism, because naturalism purportedly cannot account for the origin of the four-dimensional universe itself. For an entity to explain that, Meyer says, it must transcend those four dimensions. He concludes: "In so far as God, as conceived by Judeo-Christian theists, possesses precisely such transcendent causal powers, theism provides a better explanation than naturalism for the singularity affirmed by Big Bang cosmology" (25). He makes the same argument against pantheism.

However, there is nothing precise about an appeal to God here; one could as easily appeal to any supernatural power, divine or otherwise, in the same vague manner - so to call this "evidence" is wishful thinking at best. Moreover, if Meyer really thinks that the Big Bang singularity provides *confirming* evidence of the Christian God, he would also have to agree that God would be *disconfirmed* should the Big Bang model by supplanted by, for example, the cyclic universe model, as is currently proposed by Paul Steinhardt and Neil Turok, in which time and space exist forever. In fact, if the two sorts of naturalism are kept straight, the possibility of God or of any alternative supernatural stand-in remains untouched by either model.

Leaving this aside, Meyer does say that the Big Bang does not by itself provide evidence for "the other attributes of God," such as intelligence and rationality, but he believes that ID theory can provide epistemic support for these, and more:

> [TJhe Big Bang theory provides for aspects of theistic belief, namely, theism's affirmation of a finite universe and a specifically *transcendent* Creator. Other types of scientific evidence may provide support for other attributes of a theistic God, or even other aspects of Biblical teaching. (26)

In order to support more specifically biblical teachings, Meyer turns to his arguments for special creation. Meyer claims that the purported "fine-tuning" for life of the fundamental physical parameters of the universe "strongly suggests design by a pre-existent intelligence" (9). Moreover, he suggests that the intelligent designer must be a personal agent, because "a completely impersonal intelligence is almost a contradiction in terms" (26). Once again, he concludes that this supports the Christian notion of God over any naturalistic or pantheistic view.

Meyer argues that theism also wins over a deist view,[13] because only theism, as an interventionist view, "can explain the origin of biological information as the result of God's creative activity (within a natural order that He otherwise sustains) at some point after His initial Creation" (Meyer 1999, 27). Meyer claims that ID theory can empirically demonstrate this necessity, citing another of his articles in which he argues against a form of theistic evolution (Meyer 1999a). (One would like to know how such claims square with statements that ID theorists make in other forums to the effect that as far as they can say, information may all be "front-loaded"; but we shall leave such inconsistencies aside.) It is in biology that ID theorists make what they believe is their strongest argument, dting the complexities of subcellular machines as the best evidence of intelligent design.

None of these specific arguments is original with Meyer, however, and whenever he writes or speaks of them he relies upon his fellow Wedge members Michael Behe and William Dembski. In "The Return of the God Hypothesis," he begins with Behe's notion of "irreducible complexity" and cites the bacterial flagellum, which has become their centerpiece example. He rehearses Behe's original argument that the flagellum could not in principle have arisen gradually by a Darwinian mechanism, because it relies for its functioning upon "the coordinated interaction of some forty complex protein parts," the absence of any one of which "would result in the complete loss of motor function" (Meyer 1999, 14-15).

I have previously shown (Pennock 1999) why Behe's notion of irreducible complexity fails as an in-principle argument against the Darwinian mechanism.[14] In an article in 2001, Behe conceded that a counterexample I gave did undermine the notion of irreducible complexity as he had defined it (Behe 2001). He pledged that a revised definition would repair the problem, but did not provide one at the time, nor has he in the years since. Moreover, I had showed conceptually how a gradual stepwise process using a simple natural scaffolding could produce an 1C system (Pennock 2000). Since then, colleagues and I have experimentally demonstrated the evolution of an 1C system (Lenski et al. 2003). Miller, Orr, Doolittle, Kitcher, Shanks and Joplin, and many others have published other criticisms of Behe's concept as well as of the specific examples he gave. At the time Meyer wrote his article, Behe's notion was still relatively fresh (not counting, of course, Paley, Ray, and others who made the same argument centuries earlier), but by now his variation of the idea has been thoroughly discredited.

The second argument from biology that Meyer cites involves William Dembski's notion of "specified complexity" and his "design inference." The claim is that proteins are not just complex but also "specified," and that such "complex specified information" (CSI) cannot arise naturally but only by an intelligent cause. Meyer puts the argument this way:

> Since we know intelligent agents can (and do) produce functionally specified sequences of symbols or arrangements of matter (information content), intelligent agency qualifies as a sufficient causal explanation for the origin of this effect. And since ... naturalistic scenarios have proven universally inadequate for explaining the origin of information content, mind or creative intelligence now stands as the best and only entity with causal power to produce this feature of living systems. (Meyer 1999,19)

He repeats the claim that intelligent agency is "empirically *necessary"* and "the only" known cause of information content three more times on the same page, but repetition does not improve the argument.

The appeal to our "uniform experience of intelligent design" as the cause of information simply begs the question. The goal of the ID argument is -to undermine "naturalistic scenarios," by which ID theorists mean the adequacy of material causes. However, our uniform experience is of design by natural agents - almost invariably, human beings. Human beings, as far as all experience has shown, are made of ordinary natural materials, which is good evidence that natural processes *can* produce CSI. Thus, for ID theorists to cite human design as the basis for their inference to the necessity of supernatural design is to assume what they are trying to prove.[15]

In fact, although ID theorists do regularly claim simply to be making an inductive inference on uniformitarian grounds from our experience of the intelligent actions of other people, in other places where they spell it out in more detail, the argument turns out to be quite different. Dembski's technical argument is set up as an argument by elimination; if one can filter out "necessity" and "chance" as possible explanations of some phenomenon, then "design" wins by default as the sole remaining option. But intentional design, in the ordinary sense of the term that is relevant here, is orthogonal to the other two concepts, so the argument fails. Dembski has done no more than formalize the God of the gaps argument (Pennock 2004). However, there is no need here to go further into this or the many other problems with Dembski's argument: Dembski states that Behe's notion of irreducible complexity is a special case of complex specified information; so given that Behe's argument fails, Dembski's does also as a corollary.

Neither Dembski's specified complexity nor Behe's irreducible complexity - the Wedge movement's best shots - can support ID'S astounding claim to have scientifically demonstrated the necessity of the God hypothesis.

However, the problems with ID are even more fundamental than the specific flaws in these arguments, as may be seen in Meyer's attempt to provide a generic justification for their approach.

Meyer argues that the natural sciences give rationally compelling support for the existence of God when understood in terms of ID theory's reformulation of the classic design argument. These "evidences" are "not a formal deductive proof of God's existence" (Meyer 1999, 13), he says, nor do they "depend upon analogical reasoning" (Meyer 1999, 19). Rather, he claims, they function as part of a scientific proof — an *abductive inference* or an *inference to the best explanation.*[16] Meyer summarizes the form of the argument as follows:

> DATA: The surprising fact A is observed.
> LOGIC: *But if B were true, then A would be a matter of course.*
> CONCLUSION: Hence, there is reason to suspect that B is true. (Meyer 1999,21)

Let us initially grant for the sake of argument that the ID argument succeeds as an abductive inference of this sort. Does this allow ID theorists to draw the conclusion that they repeatedly trumpet, namely, that transcendent intelligent design is *the only-way* to produce biological complexity? Clearly not, even on Meyer's account. The argument would give some reason to think the God hypothesis is true, but *not* that it is *necessary.*

In point of fact, however, Meyer has not succeeded even in fulfilling the form of the abductive inference he claims to be following. Look again at the logic he sets out. "B" would be the design hypothesis, and "A" would be the bacterial flagellum (or fine-tuning, or one of the other "evidences" that ID theorists cite). In what sense is the latter "a matter of course" given the former? Designers in general cannot create whatever they please. In our uniform experience, they all have limits of knowledge and power. Thus, we cannot say that creating a flagellum would even be possible for a designer, let alone "a matter of course." But suppose they avoid this problem by explicitly stating the God hypothesis, under the Judeo-Christian assumption of omniscience and omnipotence. That does not help, for we have no way to know what it would or would not please God to do. Are we to assume that God likes flagella? On what grounds? Is Meyer somehow privy to God's intentions? (It might be that ID advocates believe that scripture does provide revealed knowledge of this sort, but I am here taking them at their word that they do not appeal explicitly to the Bible in their arguments. Even if they were to make such an appeal, however, the same problem would arise in a different fashion because of issues of how to interpret the purportedly divine word - after all, aren't God's ways supposed to be inherently mysterious?) The key point is that the God hypothesis (or the euphemistic mere creation or design hypothesis) does not provide any explanatory expectations whatsoever regarding any of die purported "evidences." Thus, their abductive

design inference cannot even get off the ground, let alone rise to the lofty metaphysical heights claimed by the Wedge.

Notice how different the God hypothesis is from the ordinary cases in which we infer that someone designed something - as in anthropology, for example. In such cases, we have a wealth of knowledge about human beings, their causal powers, their previous creations, and their possible intentions. When we evaluate the explanatory virtues of a hypothesis of intentional design in ordinary cases, we therefore have relevant information that can drive the inference. Drawing a conclusion that intelligence is behind a design is more difficult when we turn to other animals, but even in those cases - especially with the other primates - we have much background knowledge to which we can appeal. (It is telling that ID theorists never give examples of intelligent design by other animals - probably because, as we saw earlier, they believe that humans are unique in being created with a transcendent mind.)

What about the possibility of extraterrestrial intelligence? Appeal to the SETI project as a way to justify indirectly the scientific acceptability of the design inference is a staple of the Wedge, though it is by no means original to them.[17] Extraterrestrial intelligence Would probably be hard to detect, but even in this case we have a basis for a possible inference, given the presumption that extraterrestrials would be natural beings like us with understandable intentions. However, unless we are willing to naturalize God, we have no grounds for any inference once we open the door to divine design.

The same sort of problem arises for the hypothesis of divine design if one tries to assess its explanatory virtues. For instance, is theism indeed a *simpler* hypothesis than Darwinian evolution, as Meyer says? He gives no argument to support this claim, and it seems obviously false on its face. Unlike the Darwinian mechanism, which explains how biological complexity can arise from simple processes, the design hypothesis simply pushes the problem of complexity back a step and exacerbates it. It is certainly not simpler to explain biological complexity by reference to a mysterious agent who is infinitely greater in complexity. The hypothesis fares no better with regard to other explanatory virtues (Pennock 1999, 2003).

In fact, their design inference is an inference to the best explanation in only the most attenuated sense. Meyer's discussion here is one of the few places in which one finds even a mention of specific explanatory virtues. In almost every other case, as noted earlier, when one examines the logic of their design inference, one finds nothing more than an argument from ignorance.

To conclude, let us tie ID'S anti-evolutionism back to the moral problem, which Meyer and Thaxton posed in terms of justifying human rights:

> [I]f the traditional understanding of man is correct, if it is not only doctrinal but factual, then governments can derive human rights from a dignity that actually exists. But if the traditional view is false and the modern scientific view prevails, then there is no dignity and human rights are a delusion, not only in Moscow but here in the West as well. (Thaxton and Meyer 1987)

As we have seen, this is a false dilemma in many ways; but for those who believe that the options are so stark, it is no wonder that there can be no accommodation to evolution. DNA must be designed; the "traditional" religious view must be factual. As we saw. Wedge members boldly claim that their science shows that it is, and that ID theory confirms not only theism over every other metaphysical view, but also, specifically, the traditional Christian notion of God and Creation.[18] However, as we also saw, the arguments they give indeed are "repetitive, imprecise, immodest, and very unsatisfactory," just as Dembski's interlocutor came to conclude. Methodological naturalism is neutral with regard to the God hypothesis and, in any case, human rights were never in jeopardy. Their reasons for rejecting evolution and the modern scientific view are unsound, as is their pre-modern alternative.

Finally, their reference to "Moscow" is also significant; it is common for the Wedge to link Communism and "Darwinism." However, it behooves us to recall that in the former Soviet Union, Darwinian evolution was rejected on ideological grounds. Because the Communist Party denounced the Darwinian view in favor of Lysenkoism, a variant of Lamarckism that was more in line with Party ideology, biological research was set back for a generation. ID-ology could have the same effect in this country, if it succeeds in its lobbying efforts. The Christian presuppositionalism that grounds the ID Wedge movement is a protected religious belief, but it cannot replace the foundation of modern science and it does not belong in the science classroom.

Notes

1. Dembski continues his regular use of the metaphors of war in his writings. In proposing his internet society <iscid.org> as a means of networking for Intelligent Design theorists, he explains: "Concentration offerees is a key principle of military tactics. Without it, troops, though willing and eager, wallow in indecision and cannot act effectively" (Dembski 2002).
2. After I began writing this article, the Discovery Institute dropped the loaded term "Renewal" from the name, so the CRSE is now the CSE - the Center for Science and Culture. Dembski's Biola address, however - also delivered while this article was being written - continues to cite the vision of a "cultural renewal" that supposedly will come with the defeat of materialism and naturalism as being ID supporters' primary motivation (Dembski 2002).

3. Among other efforts, he has been the spokesperson for the movement at a hearing on Curriculum Controversies in Biology before the U.S. Commission of Civil Rights in August 1998; at a briefing for some members of Congress and their staffs on Scientific Evidence of Intelligent Design and Its Implications for Public Policy and Education in May 2000; and at a hearing before the Ohio State Board of Education in March 2002, trying to get that body to include ID in the state's science curriculum.
4. One can find similar repetition in the writing of the other ID leaders, including Dembski and Behe, who have often recycled paragraphs without citing their original appearance.
5. Strangely, this op-ed piece lists the president of the Discovery Institute, Bruce Chapman, as the primary author.
6. Meyer uses this figure in the two 1996 op-ed pieces and in the 1998 piece, but changes it to forty in the 2002 piece.
7. It is not only we critics who point out that ID fails to qualify as science in this regard. In his Biola speech, Dembski mentioned one sympathetic geneticist who was intrigued with ID but who felt pessimistic about its prospects, writing: "If I knew how to scientifically approach the question you pose, I would quit all that I am doing right now, and devote the rest of my career in pursuit of its answer. The fact that I have no idea how to begin gathering scientific data that would engage the scientific community is the very reason that I don't share your optimism that this approach will work" (Dembski 2002). Dembski told his audience that he himself remained optimistic that ID had research potential, but tellingly, he admitted that he had no specific research proposals to offer, just some possible "research themes."
8. Though the terms are slightly different, Meyer's argument here is the same as that made by creation scientists in Arkansas, who also contended that the creation hypothesis is scientifically on a par with evolution.
9. Meyer sees a direct connection between naturalism and evolution that he believes undermines the possibility of knowledge. According to him, naturalism "view[s] the human mind as a composite of evolutionary adjustments responding to chemical and biological stimuli" (Meyer 1986), and he claims that on this account "the validity of human reason and natural science is destroyed" (Meyer 1986). For Meyer, as for Dembski, who later made a similar argument (Dembski 1990), the human mind must be metaphysically different in kind from the material world. However, neither Meyer nor Dembski has shown that there is anything to the notion of "knowing truth" that would require a proverbial ghost in the machine.
10. The complete Wedge document is available at <www.stephenjaygould.org/ctrl/archive/wedge-document.html>. For an analysis of the document see Forrest 2001 and Forrest and Gross 2003.
11. By coincidence, this *JIS* issue also contained an article by two other ID proponents, Karl W. Giberson and Donald A. Yerxa. In "Providence and the Christian Scholar, "*Journal of Interdisciplinary Studies* 11(1999): 123-40, they repeat the standard ID criticisms of methodological naturalism (MN), explaining that accepting MN at the level of one's discipline can "result in an incoherence" with the theism of one's faith, and arguing that the tension can be resolved by

rejecting the idea that the physical universe is closed to the possibility of divine action and by readmitting God's Providential action as a real explanatory category.

12. When lobbying for ID in the public schools. Wedge members sometimes deny that ID makes any claims about the identity of the designer. It is ironic that their political strategy leads them to deny God in the public square more often than Peter did. Meyer, as least, is more forthright.
13. That is, that "the information necessary to build life was present in the initial configuration of matter at the Big Bang" (Meyer 1999, 26).
14. Also, in Pennock 2001 I replied to some subsequent points that he made.
15. As I discuss elsewhere (Pennock 2003), Dembski actually seems to believe that his design inference proves that the human mind necessarily transcends natural processes. But he cannot offer this both as a conclusion and as a premise in his design inference.
16. Dembski makes the same claim in his own writings on the design inference.
17. The SETI analogy and the elements of Dembski's argument, for instance, go back at least as far as Young Earth creationist Norman Geisler (Pennock 1999, 251).
18. Strictly speaking, it would be better tp say that this is *their* preferred notion of Christianity, since many Christian theologians would reject the position they advocate. In any case, my argument in this chapter is not against the existence of God but against ID'S claim that they had confirmed God as a scientific hypothesis.

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