



Douglas Groothuis

Intelligent Design and the State University: Accepting the Challenge

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The emerging discipline of Intelligent Design (ID) is a legitimate scientific research program and, therefore, should be taught as such at the state university. I argue that the design inference is a reliable means of detecting design in nature which relies on no uniquely religious assumptions. However, ID does grant some intellectual credibility to Christian theism since it directly challenges the monopoly of naturalism in science and thus opens the door to claims that the Christian God is the Designer of nature.

The emerging discipline of intelligent design (ID) is an academically justifiable subject for teaching and study at the state university, both in the hard sciences and in philosophy. If ID arguments are allowed to enter into academic debate at the university level, scientific categories will be rightly expanded and philosophical questions related to the rationality of Christianity will be rightly raised within the sphere of science in a new and significant way.

The thesis is that ID is legitimately scientific and lends epistemic support to Christian theism. As such, it gives science another tool for empirical discovery and serves as a key challenge to the monopoly of naturalistic explanation in the sciences. This monopoly issues from a perspective that disallows any distinctively theistic understanding of nature a priori because naturalism (either philosophical or methodological) excludes design as a fundamental category of scientific explanation. While ID is neither a religion nor based on uniquely religious principles, it lends credibility to Christian theism as an explanation for nature, since Christianity claims that evidence of God *qua* designer should be

detectible in some way from nature (see Ps. 19:1-6; Rom. 1:18-21).¹ However, ID in and of itself does not argue for a full-fledged Christian theology, since it does not—and cannot—speak directly to distinctively Christian matters such as the Trinity or the Incarnation.

Christianity and Freedom of Thought at the State University

In a nation that enshrined freedom of religion and freedom of speech in the Constitution, it is ironic and tragic that the leading organ of higher learning in this nation—namely, the university—has separated Christian knowledge claims from its curriculum and its ethos. By “knowledge” I mean justified, true belief, which is the classical understanding, going back to Plato.² This situation,

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of course, was not always so, as George Marsden and others have amply documented.³ Many colleges that originally shared a Christian vision have become secularized, and secularization has resulted in a fact/value dichotomy in many areas of American life, including the university. Facts abide in the domain of knowledge; they are empirical and public in nature. Values repose somewhere in the realm of subjective opinion and are private in nature. Given this conceptual dichotomy, religious truth-claims—Christian or otherwise—are typically excluded from the sphere of the university with respect to their being candidates for genuine knowledge. Science speaks to facts; religion to values. While higher education should be an environment open to genuine pluralism, principled disputation, and academic freedom, Christian perspectives are largely ignored and not allowed into academic debate.⁴

Some scholars have attempted to break apart this dichotomy by arguing that secular claims are not value-neutral or epistemologically disinterested, and that even hard science is motivated by presupposed worldviews.⁵ This approach has its strengths and evens the playing field to some extent, as long as it does not devolve into postmodern nonrealism or hard perspectivism.⁶ However, I suggest another approach to science that can serve to make the university more open to and respectful toward Christian knowledge-claims. That approach is ID.

Detecting Design in Nature

ID is a fairly young movement made up of scientists, philosophers, and others who deny the sufficiency of Darwinism for explaining nature. What it disputes about Darwinism is not that natural selection occurs, but that undirected natural causes alone are sufficient to explain all of life. The Discovery Institute, the leading organ of ID research and activism, defines ID thusly:

The theory of intelligent design holds that certain features of the universe and of living things are best explained by an intelligent cause, not an undirected process such as natural selection.⁷

Unlike the older and less intellectually sophisticated creationism, ID does not argue for a young earth, young universe, or a global flood.⁸ Moreover, it is a big tent movement, with members holding to a variety of religious and nonreligious convictions.⁹

Thus it cannot be stereotyped as a fundamentalist revolt against science. While some of the arguments of ID may have religious implications hostile to naturalism and friendly toward theism, its methodology and presuppositions are scientific and not uniquely theological. ID does not appeal to *any* sacred texts for *any* evidential support of *any* of its theories.

William Dembski has done more than anyone to theoretically ground the ID movement in a bona fide scientific strategy. The details of Dembski's thinking—which often reach a high theoretical level—cannot be pursued at length here. Dembski lays out a method for detecting design in nature by means of an empirical strategy that makes use of rigorous criteria. This method of detecting intelligent causes is already accepted in several areas of science, such as archaeology, forensic science, intellectual property law, insurance claims investigation, cryptography, random number generation, and the search for extra terrestrial intelligence (SETI).¹⁰ ID simply employs these methods used for detecting or falsifying design and applies them to the natural sciences as well.

Design is detected through the use of an “explanatory filter” which checks for the marks of contingency, complexity, and specificity. An event or object may be reckoned the result of an intelligent cause—as opposed to a non-intelligent, material cause—if it exhibits all three of these factors. In other words, each factor by itself is a necessary, but insufficient, condition of design. However, if all three factors are combined, then this threefold cluster becomes a necessary and sufficient indicator of design.

An event or object is *contingent* if it is not explicable on the basis of automatic processes lacking in intelligence. An event is not contingent if it can be explained simply on the basis of natural law, such as a waterfall or a sunrise. To be more specific, Dembski notes that a salt crystal can be explained on the basis of chemical processes described by chemical laws. Thus, it is not contingent in the sense meant by Dembski. However, a complex setting of silverware is not explicable on the basis of automatically functioning natural laws. We infer from its properties that it was laid out by an intelligent agent. While natural laws act on contingent events (gravity affects the place setting), natural laws cannot exhaustively account for them.

Complexity is a form of probability, and the greater the complexity, the less the probability that the event or object came about by chance—that is, without intelligent causation. But as Dembski notes,

Complexity by itself isn't enough to eliminate chance and indicate design. If I flip a coin 1,000 times, I will participate in a highly complex (or what amounts to the same thing, highly improbable) event. Indeed, the sequence I end up flipping will be one in a trillion trillion trillion ... where the ellipsis needs twenty-two more "trillions." This sequence of coin tosses won't, however, trigger a design inference. Though complex, this sequence won't exhibit a suitable pattern.¹¹

Thus far we have seen that contingency and complexity are necessary, but not sufficient, indicators of design.

The last indicator is *specification*. If an object or event is to pass successfully through the design filter, it must exhibit a pattern independent of its mere improbability. That is, the pattern of improbable and contingent factors must be *specified* ahead of time, not *fabricated* after the fact. If a player shakes up a box of Scrabble® tiles and throws them onto a table, the resulting arrangement of English letters will be improbable (since any number of arrangements are possible) and contingent (since the throwing of the tiles is not attributable to an automatic process). However, the pattern of letters will be largely gibberish, only pocked by an occasional short word such as "be" or "to." This will be the case even if the procedure is repeated many, many times. But what if we compare the results of the random throwing of tiles on the table with the results of a finished game of Scrabble®? The tiles arranged by players according to Scrabble® rules will show many words *arranged intentionally*. That is, the letters will be arranged according to a pattern independent of themselves—the rules of English spelling. This orderly arrangement of parts (the Scrabble® tiles), then, conforms to the specificity of words. When comparing the results of the random Scrabble® throw with that of the finished game, the marks of design are readily detectable.

Another example may help. If a farmer randomly throws a dart against the side of a barn from twenty feet away, where the dart lands will be improbable in the sense that it might have landed in any number

of places. This is still the case when the farmer paints a bull's eye around the dart and then remarks on what an accurate dart thrower he or she is. This is what Dembski calls a *fabrication* instead of a *specification*. However, if a bull's eye is painted on the barn *before* the dart is thrown, and the farmer hits the bull's eye, the result is *specified*. This likely indicates skill instead of luck—especially if the results are repeated. However, chance and necessity can adequately explain the destination of the randomly hurled dart.¹² To claim otherwise—by painting on a target after the fact—is ad hoc and indicates a fabrication, which is not appropriate for detecting design.

The design filter is an attempt to locate instances of "specified complexity" in the natural world. This specified complexity is a mark of intelligence and cannot be reduced to the factors of chance and necessity. There are many candidates for a design inference in the natural world, but I will speak only of the bacterial flagellum, a motor on the back of bacteria in a cell.

Michael Behe and Molecular Machines

Biochemist Michael Behe claims that Darwinism cannot account for certain features of molecular biology, since its appeal to natural law and chance (its only explanatory resources) falls short. Behe's essential argument is that certain molecular machines could not have been brought about through gradualist, naturalistic Darwinian mechanisms that lack intelligent causation. This is because their component parts are all required to function at once and together in order to confer their vital function. Behe calls this phenomenon "irreducible complexity." Behe writes:

By *irreducibly complex* I mean a single system composed of several well-matched, interacting parts that contribute to the basic function, wherein the removal of any one of the parts causes the system to effectively cease functioning. An irreducibly complex system cannot be produced directly (that is, by continuously improving the initial function, which continues to work by the same mechanism) by slight, successive modifications of a precursor system, because any precursor to an irreducibly complex system that is missing a part is by

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definition nonfunctional. An irreducibly complex biological system, if there is such a thing, would be a powerful challenge to Darwinian evolution.¹³

Irreducible complexity can be contrasted with “cumulative complexity.” The latter describes a system in which complexity is built up piece by piece, as in the founding and growth of a city. Any number of buildings and roads could be removed without the city ceasing to be a city. But irreducible complexity is another animal altogether. As Behe notes,

An *irreducibly complex* system cannot be produced ... by slight, successive modifications or a precursor system, because any precursor to an irreducibly complex system that is missing a part is by definition nonfunctional ... Since natural selection can only choose systems that are already working, then if a biological system cannot be produced gradually it would have to arise as an integral unity, in one fell swoop, for natural selection to have anything to act on.¹⁴

Behe illustrates this concept through a mousetrap, in which every part of the device is needed for its function of catching mice.¹⁵

In *Darwin's Black Box*, Behe gives several examples of molecular machines he takes to be irreducibly complex, including the blood clotting cascade, the cilium, and (most famously) the bacterial flagellum. He claims that “examples of irreducible complexity can be found on virtually every page of a biochemistry textbook.”¹⁶ We will briefly consider the flagellum: an extremely complicated outboard motor used by bacteria to swim. Behe notes that the available scientific literature on these systems—all written by Darwinists—fails to even attempt to explain how the flagellum could be formed in a gradualist manner. It is just assumed.¹⁷ But he takes the assumption to be presumption and proposes an alternative. These systems were designed ahead of time (with the entire unit in mind) such that each part was intended to work with every other part to produce the end result. This notion of planning the relationship of parts to a whole to perform a function—so common in human experience—is utterly antithetical to Darwinism, which rejects any hint of antecedent intentionality by any intelligent cause. Behe summarizes the workings of the flagellum:

The flagellum is quite literally an outboard motor that some bacteria use to swim. It is

a rotary device that, like a motorboat, turns a propeller to push against liquid, moving the bacterium forward in the process. It consists of a number of parts, including a long tail that acts as a propeller, the hook region, which attaches the propeller to the drive shaft, the motor, which uses a flow of acid from the outside of the bacterium to the inside to power the turning, a stator, which keeps the structure stationary in the plane of the membrane while the propeller turns, and bushing material to allow the drive shaft to pike up through the bacterial membrane. In the absence of the hook, or the motor, or the propeller, or the drive shaft or most of the forty different types of protein that genetic studies have shown to be necessary for the activity or construction of the flagellum, one does not get a flagellum that spins half as fast as it used to, or a quarter as fast. Either the flagellum does not work, or it does not even get constructed at all. Like the mousetrap, the flagellum is irreducibly complex.¹⁸

The flagellum's irreducible complexity is an example of Dembski's concept of specified complexity. The flagellum is *contingent*—its constitution is not explicable on the basis of any natural law; it is amazingly *complex*; and it is *specified* in its functions. It is not merely improbable. The complexity fits a pattern that is independent of the actual living system. That is, the key functions of the flagellum are found elsewhere, as in outboard motors. The complex functionality of the flagellum is a case of specified complexity, which is sufficient evidence for design.¹⁹ Moreover, the genetic assembly instructions for the flagellum are a further indication of irreducible complexity, since they indicate contingency, complexity, and specification. ID theorists have made much of the “information argument” from the specified complexity of genetic information.²⁰

Objections to the Design Inference

Of course, various Darwinists have challenged Behe and have advanced naturalistic explanations for the flagellum. Behe has kept track of the objections and responded to them forcefully.²¹ The objection heard most often is that one must simply presuppose naturalistic explanations because of the very nature of science. This is called “methodological naturalism.”

The implicit or explicit definition of science, according to methodological naturalism, is this:

Science pursues material/unintelligent explanations for natural phenomena through empirical observation and rational theorizing.

This definition commits the fallacy of begging the question in favor of naturalistic explanations. It also insures that if there is any design evident in nature, science—so defined—is sure to miss it. Such a presuppositional veto is a *knowledge-stopper*, since if there is any knowledge of a designer available in nature, this understanding of science precludes it in principle. It unfairly excludes intelligence as having an empirically detectable causal primacy in any natural system.

I propose another general understanding of scientific investigation that does not suffer from this conceptual squint:

Science pursues the best explanation for natural phenomena through empirical observation and rational theorizing.

This may—or may not—include causes that are not entirely explicable on naturalistic grounds: that is, *intelligent* causes or intelligent design. We should, thus, follow the *empirical* evidence wherever it leads in the search for truth.

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Rather, ID explains
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of intelligent causes.

While the design inference is viewed by Richard Dawkins and others as a science-stopper because it is supposedly based on ignorance, it is nothing of the sort. ID does not appeal to *ignorance* of natural causes, but to the *inadequacy* of natural causes to explain the entity in question. Furthermore, the design inference is based on substantial increases in our knowledge of the natural world (from microbiology to astrophysics), a knowledge that has revealed specified complexity at many levels.²²

But some would exclude any nonmaterial causation from science. Consider this from well-known biologist Richard Lewontin:

We take the side of science *in spite* of the patent absurdity of some of its constructs, *in spite* of its failure to fulfill many of its extravagant promises of health and life, *in spite* of the tolerance of the scientific community for unsubstantiated just-so stories, because we have a prior commitment, a commitment to materialism. It is not that the methods and institutions of science somehow compel us to accept a material explanation of the phenomenal world, but, on the contrary, that we are forced by our a priori adherence to material causes to create an apparatus of investigation and a set of concepts that produce material explanations, no matter how counter-intuitive, no matter how mystifying to the uninitiated. Moreover, that materialism is an absolute, for we cannot allow a Divine Foot in the door. The eminent Kant scholar Lewis Beck used to say that anyone who could believe in God could believe in anything. To appeal to an omnipotent deity is to allow that at any moment the regularities of nature may be ruptured, that miracles may happen.²³

Lewontin's "divine foot in the door" worry commits the fallacy of the false dichotomy: either naturalistic science or a divine foot in the door that kicks the life out of science. By divine foot, Lewontin (and many others) means admitting a random element into science that would play havoc with science's desire to find meaningful patterns of explanation. After all, God (or any other supernatural agent) could supposedly do anything in nature, thus destroying orderly patterns. But this objection misses the mark because ID theorists do not insert intelligent causes at any and every place in the natural world such that natural laws would no longer hold. Rather, ID explains the origin or basic structure of certain natural phenomena by virtue of intelligent causes.²⁴ They appreciate microscopes and telescopes as much as anyone. (Moreover, the God of Christian Scripture does not intervene capriciously or irrationally.)²⁵

One last objection, repeatedly given by Richard Dawkins, is that any appeal to a designer is pointless, since this designer must also be explained by a designer, *ad infinitum*, *ad nauseam*. But the design inference gives the best explanation for certain observable states of affairs. Since the designer is

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not observable, its specific nature is undetermined by the design inference. Of course, if the designer is the God of Christianity, he is self-existent and not subject to further explanation (see Acts 17:25). (Elsewhere I have argued that one personal agent is the best candidate for the designer.²⁶) Moreover, the specific character of the designer may be fleshed out by philosophical and theological arguments outside the ken of a design inference *simpliciter*.²⁷

Intelligent Design at the University

I have not given all the arguments for ID, nor have I responded to all the objections raised against it. For example, certain Christian theists, who are committed to Darwinism as an adequate theory of life and its development, argue that we cannot “catch God in the act”²⁸ of design and that methodological naturalism is the true vocation of science. They fear the old “God of gaps” problem and believe that ID falls into this fallacy. I cannot adequately respond to all of these concerns, but suffice to say that there are both good and bad gaps in empirical investigation of the natural world, as John Lennox has recently noted. A bad gap occurs when God is illicitly used to plug a hole in a theory (such as Newton’s invocation of divine action to alter planetary motion from time to time). But there are good gaps that simply reveal the inadequacy of unintelligent natural causes to explain exhaustively some things in nature, such as the bacterial flagellum or the informational nature of DNA.²⁹ If we ban ID explanations from science (as both atheists and some Christians want), then we will eliminate an explanatory category from science. This, then, insures that a “matter of the gaps” explanation will trump all others in principle and no matter the evidence to the contrary.

I have tried to suggest that ID is authentically a scientific model for investigation. If successful, ID arguments lend rationality to one necessary component of Christian theism: namely, that God’s designing intelligence is observable in nature. The fact that many Christians are advancing ID arguments in no sense disqualifies their arguments as being religious instead of scientific. One’s motivations in this case are irrelevant; it is one’s theories of explanation that count decisively.³⁰ Thinking otherwise commits the fallacy of poisoning the well. Moreover, the secular university should admit the

possibility that Christianity can muster significant rational support for its worldview, even from science. If so, a genuine deliverance of science can have theological implications without violating the nature of either science or theology.³¹ This possibility of the rationality of Christian theism should not be shut down a priori by any de facto ban on the presentation of ideas that are friendly toward theism and particularly Christianity.

My practical recommendations are that ID be allowed – not required – to be taught in both science and philosophy classes at the university. Critics cannot rightly argue that teaching ID is a partisan or proselytizing activity barred by the First Amendment. No specific religion would be advocated and no religious texts are used for evidential purposes. Recent rulings against the teaching of ID in public high schools do not discredit my point because (1) the rulings are eminently disputable³² and (2) the legal situation for state colleges and universities is significantly different from that pertaining to *compulsory* education. Even my modest proposal, however, faces severe challenges from the Darwinian establishment (atheist and theistic), given how ID advocates have been treated at state universities. Nevertheless, if my arguments succeed, this proposal is warranted and would be beneficial for science itself, for students who should be exposed to rational alternatives to naturalism, and for the presentation of Christianity as a claim to *knowledge*. *

Notes

¹Some claim that these texts reveal, at most, some kind of general revelation, but that they are not sufficient to ground the claim that evidence for God as designer is discernible in nature through scientific observation. I grant that general revelation is necessary, but not sufficient, for scientific design detection in nature, but I will argue below that the scientific evidence is, in fact, available for detecting design in nature, given the strength of the ID arguments. It also seems strange theologically to grant that God has revealed himself in nature, but that an entire discipline (science) can say nothing in favor of this fact of divine design.

²This understanding has been challenged by the Gettier problem, but I cannot go into the details of that here.

³George Marsden, *The Soul of the American University: From Protestant Establishment to Established Nonbelief* (Oxford: Oxford University Press, 1996).

⁴For a discussion of indoctrination at the university, see David Horowitz, *Indoctrination* (New York: Encounter Books, 2006). Horowitz is not concerned with ID, but many of his insights relate to the ideological difficulties in challenging the received orthodoxies of the university.

⁵See George Marsden, *The Outrageous Idea of Christian Scholarship* (Oxford: Oxford University Press, 1997); and John Sommerville, *The Decline of the Secular University* (Oxford: Oxford University Press, 2006).

⁶Against postmodernism, see Douglas Groothuis, *Truth Decay: Defending Christianity against the Challenge of Postmodernism* (Downers Grove, IL: InterVarsity Press, 2000); Millard Erickson, *Truth or Consequences* (Downers Grove, IL: InterVarsity Press, 2001).

⁷"Frequently Asked Questions" at: www.discovery.org/csc/topQuestions.php.

⁸For more on the distinction between ID and creationism, see William Dembski, *The Design Revolution* (Downers Grove, IL: InterVarsity Press, 2004), 41-5; and Francis Beckwith, *Law, Darwinism, and Public Education* (Lanham, MD: Rowman and Littlefield Publishers, Inc., 2003), 118-21.

⁹For example, David Berlinski is an agnostic, secular Jew; William Dembski is an evangelical; Michael Behe is Catholic; Jonathan Wells belongs to the Unification Church; and Phillip Johnson is a Presbyterian.

¹⁰William Dembski, *The Design Inference* (New York: Cambridge University Press, 1998).

¹¹William Dembski, "Science and Design," *First Things* (October 1998); available at: www.firstthings.com/article.php3?id_article=3580.

¹²The fact that an intelligent agent hurled the dart is irrelevant here, since the agent did not apply any specific intention to the throw with respect to hitting a specified target on the wall; that is, the agent was not trying to hit a particular part of the barn wall. One could change the illustration by inserting a random, mechanical dart thrower.

¹³Michael Behe, *Darwin's Black Box*, 10th anniversary ed. (New York: Free Press, 2006), 39.

¹⁴*Ibid.*

¹⁵*Ibid.*, 66.

¹⁶Behe, "Design in the Details," in *Darwinism, Design, and Public Education*, ed. John Angus Campbell and Stephen C. Meyer (East Lansing, MI: Michigan State University Press, 2003), 298.

¹⁷*Ibid.*, 298-9.

¹⁸Michael Behe, "Evidence for Design at the Foundation of Life," in *Science and Evidence for Design in the Universe*, ed. Michael J. Behe, William A. Dembski, and Stephen C. Meyer (San Francisco, CA: Ignatius Press, 1999), 134-5. Behe gives a more in-depth description in *Darwin's Black Box*, 70-3. To get a better sense of the machines' integrated complexity, one should consult one of Behe's drawings or, better yet, watch the video presentation of the flagellum contained in *Unlocking the Mystery of Life*. This is available through Access Research Network (www.arn.org).

¹⁹See William Dembski's explanation in *Intelligent Design* (Downers Grove, IL: InterVarsity Press, 1999), 149.

²⁰See especially the work of Stephen Meyer. For example, "Word Games: DNA, Design, and Intelligence," in *Signs of Design: Understanding Intelligent Design*, ed. William A. Dembski and James M. Kushiner (Grand Rapids, MI: Brazos, 2001), 102-17.

²¹See Behe, "Afterward: Ten Years Later," in *Darwin's Black Box*, 255-72.

²²On astrophysics, see Guillermo Gonzales and Jay Wesley Richards, *The Privileged Planet: How Our Place in the Cosmos Is Designed for Discovery* (Washington, DC: Regnery, 2004).

²³Richard Lewontin, "Billions and Billions of Demons," *The New York Review* (January 9, 1997): 31.

²⁴The question of miracles occurring in history is another matter, one pertaining to philosophy and history, not to the matter of finding intelligent causes that explain the origin and basic structures of biological entities. On the relation of miracles to intelligent causes, see Dembski, *The Design Revolution*, 183-7.

²⁵On how Christianity encouraged the development of science in Europe (and why Islam did not in the countries in which it held sway), see Rodney Stark, *For the Glory of God: How Monotheism Led to Reformations, Science, Witch-Hunts, and the End of Slavery* (Princeton: Princeton University Press, 2003), 121-200.

²⁶See my review of Beckwith, *Law, Darwinism, and Public Education* in *Philosophia Christi* (series 2) 5, no. 1 (2003): 354-61.

²⁷The discipline of natural theology is essential here. See James Sennett and Douglas Groothuis, eds., *In Defense of Natural Theology* (Downers Grove, IL: InterVarsity Press, 2005).

²⁸This phrase was culled from a personal correspondence with Walter Thorson.

²⁹John Lennox, *God's Undertaker: Has Science Buried God?* (Oxford: Lion Hudson Publishing, 2007), 168-72.

³⁰See Dembski, *Design Revolution*, 50-7.

³¹I cannot explore this in more depth here, but see J. P. Moreland, *Christianity and Science* (Grand Rapids, MI: Baker Books, 1989).

³²On the recent Dover, New Jersey, decision, see David DeWolf, John West, Casey Luskin, and Jonathan Witt, *Traipsing into Evolution* (Seattle, WA: Center for Science and Culture, 2006).

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