

OBJECTIONS TO WILLIAM DEMBSKI'S INTELLIGENT DESIGN A Critical Evaluation

Kwan Kai-man

Hong Kong Baptist University

I. Introduction: Intelligent Design vs. Naturalistic Evolution?

The intricate design manifested in biological organisms has long been used as the premise of the popular Design Argument (DA), which argues that an Intelligent Designer is the best explanation of biological design. Many people believe that the demise of the DA is largely due to the philosopher David Hume. Hume did offer incisive criticisms of DA at the end of the eighteenth century, but the DA did not seem to be severely affected. The reason is that Hume did not actually manage to provide any plausible alternative to design. As even the sceptic Philo in Hume's *Dialogues on Natural Religion* admitted, when one contemplated the actual delicate designs of an eye, the idea of designer would flow in like a sensation, the logical inconclusiveness notwithstanding. Some interpret this as an intuitive-

emotional response. I think this response actually conforms well with our common understanding of rationality: despite logical inconclusiveness, accept the best explanation which is best supported by experience. The atheistic philosopher John Mackie agreed, "The reciprocal adjustments of structures and functions in myriads of different organs are indeed so delicate and complicated as to be initially surprising in the extreme, and not merely to invite but to require a search for *some* further explanation; and then the hypothesis of design is at least one to be considered among others."¹ Even Dawkins, a staunch atheist, says that he could not imagine being an atheist at any time before 1859, when Darwin's *Origin of Species* was published. He notices that Hume "did not offer any *alternative* explanation for apparent design...although atheism might have been *logically* tenable before Darwin, Darwin made it possible to be an intellectually fulfilled atheist."² So probably it was Darwin, and not Hume, who finally disposed of DA. At least it is widely believed that the DA can never again use the apparent design in living things as premise to argue for God. That is why Darwin has often been regarded as one of those intellectual giants who laid down the foundation for atheism (although Darwin himself was more an agnostic than an atheist).

However, evolution has come under attack in recent years. There is a fierce debate between the scientific creationists and evolutionists, especially in the States. Whatever the merits of scientific creationism, at least it has uncovered many weaknesses of neo-Darwinism.

¹ J. L. Mackie, *The Miracle of Theism* (Oxford: Clarendon, 1982), 141f.

² Richard Dawkins, *The Blind Watchmaker: Why the Evidence of Evolution Reveals a Universe without Design* (Harmondsworth: Penguin, 1988), 6.

However, it has made little inroad into the academic establishment, and its impact is felt mainly among the public, especially the religious people. However, since the nineties, a new wave of controversy around evolution has occurred, and it is still raging. This time the major critics of evolution are Phillip Johnson, Michael Behe and William Dembski. (An important forerunner to them is Michael Denton, and there are many other able scholars cooperating with them.) Together they spearhead the Intelligent Design (ID in short) movement, which adopts a different strategy from the scientific creationists.³ They steer clear of the controversies about the age of the earth and the details of the process of evolution, and focus their attack on the naturalistic philosophy behind neo-Darwinism. They argue that there is no adequate empirical evidence for an entirely naturalistic interpretation of evolution, and the idea of ID is a respectable intellectual or even scientific alternative to *naturalistic* evolution. (ID itself does not exclude some kind of evolution. For example, Behe accepts descent with modification but he disputes the sufficiency of naturalistic mechanisms to account for this process.)

However, the idea of design is heavily suspected among the current scientific community, and Dembski's significance lies in his careful attempt to articulate a scientific methodology of design detection (Design Inference). He argues that explanation with reference to design is scientifically acceptable, and is even applicable to instances of biological design (e.g. those molecular machines or biochemical mechanisms which exhibit irreducible complexity, as

³ For the history of these debates, see Witham Larry, *By Design: Science and the Search for God* (San Francisco: Encounter Books, 2003).

argued by Behe).⁴ Of course, this attempt to "redesign science" has met with stiff resistance, especially those naturalistically bent scientists and philosophers. However, even critics of Dembski seem to take Dembski seriously—at least as a threat—because they acknowledge that Dembski's ideas are very "seductive." (To me it amounts to an admission of the *apparent plausibility* of Dembski's ideas.) In this paper, I will try to explain Dembski's methodology of ID, and evaluate whether his claims can withstand criticisms.

II. Exposition of William Dembski's Intelligent Design Theory

A. Empirical Detection of Design is Possible

One of the best parts of Dembski's work is his uncovering of the common practice of design detection among our everyday reasoning and many other intellectual pursuits. Cases include: Nicholas Caputo's case; Alice and Bob's gift from the children (china); intellectual property: originality vs. plagiarism; forensic science, e.g. fingerprint; cryptosystem; SETI project.⁵

As Dembski says, "Designed objects like Mount Rushmore⁶ exhibit characteristic features or patterns that point us to an intelligence. Such features of patterns are *signs of intelligence*. Proponents of intelligent design...are not content to regard such signs as mere intuitions. Rather, they insist on studying them formally,

⁴ Michael Behe, *Darwin's Black Box* (New York: Free Press, 1996).

⁵ William A. Dembski, *The Design Inference: Eliminating Chance through Small Probabilities* (New York: Cambridge University Press, 1988), chap. 1.

⁶ This is the mountain where the faces of several American presidents are carved on it.

rigorously and scientifically."⁷ I am convinced by Dembski's examples that empirical detection of design is possible. So a methodological exploration of this process is entirely legitimate, and this part of Dembski's theory can indeed be separated from his theological concerns. Whether Dembski's proposed methodology in the end succeeds or not, his attempt to raise the question and give his best shot is already a big contribution to the study of scientific methodology or reasoning. However, we will see that some critics are so determined to deny design and its theological implications that they press objections that will render empirical detection of design impossible. If this consequence is unacceptable, then these objections should be rejected.

B. Dembski's Design Inference and Explanatory Filter

Dembski admits that "Design has had a turbulent intellectual history. The main difficulty with it in the last two hundred years has been discovering a conceptually powerful formulation of design that will fruitfully advance science...scientists have to be sure that they can reliably determine whether something is designed....It's this fear of falsely attributing something to design only to have it overturned later that has prevented design from entering science proper."⁸ However, Dembski believes he has at least a preliminary answer to this problem, and this is his theory of Design Inference.

The Design Inference can be expressed as a flowchart containing a series of explanatory filters.⁹ This clearly expresses his idea of

⁷ William A. Dembski, *The Design Revolution: Answering the Toughest Questions about Intelligent Design* (Downers Grove: InterVarsity Press, 2004), 33.

⁸ Dembski, *The Design Revolution*, 33-34.

⁹ See Dembski, *The Design Inference*, 37; Dembski, *The Design Revolution*, 88.

explanatory priority: "Regularities are always the first line of defense. If we can explain by means of a regularity, chance and design are automatically precluded. Similarly, chance is always the second line of defense."¹⁰ "Since chance is the simpler explanation, barring strong countervailing reasons we prefer to explain by reference to chance as opposed to design."¹¹ So to arrive at design as the explanation of an event E, we need to eliminate both law (regularity or necessity) and chance. To eliminate regularity is to argue that no regularity accounts for E. In practice, it is to argue that "E is compatible with all relevant natural laws...but that these natural laws permit any number of alternatives to E. In this way E becomes irreducible to natural laws, and thus unexplainable in terms of regularities." Dembski gives these examples: "The position of scrabble pieces on a scrabble board is irreducible to the natural laws governing the motion of scrabble pieces; the configuration of ink on a sheet of paper is irreducible to the physics and chemistry of paper and ink; the sequencing of DNA bases is irreducible to the bonding affinities between the bases."¹²

To eliminate chance, it is not enough to argue that E is very improbable. Dembski points out: "Flip a coin long enough and you'll witness a highly complex or improbable event. Even so, you'll have no reason not to attribute it to chance."¹³ The crucial point is to notice that the characteristic trademark of intelligence is specified complexity. "An event exhibits specified complexity if it is contingent and therefore not necessary; if it is complex and therefore not readily

¹⁰ Dembski, *The Design Inference*, 38.

¹¹ Dembski, *The Design Inference*, 45.

¹² Dembski, *The Design Inference*, 53.

¹³ Dembski, *The Design Inference*, 35.

repeatable by chance; and if it is specified in the sense of exhibiting an independently given pattern....The important thing about specifications is that they be objectively given and not just imposed on events after the fact."¹⁴ To clarify this concept of specified complexity, we can compare life with a crystal and a polymer. Consider the following illustrations:¹⁵

- (1) Crystal: GIFT GIFT GIFT...
- (2) Random polymer: TLEKNLJKPR KREWMRWELRWL
- (3) DNA: A MESSAGE IS RIDING ON THIS SEQUENCE

A crystal has a specific structure but lacks complexity. A random polymer is complex but lacks specificity while the sequence of DNA is both complex and specific.

We note that Dembski does not advocate a slavish appeal to design. In fact some critics charge that Dembski is too lenient on chance and too harsh on design (e.g. Sober). I am sympathetic towards this criticism but this does no harm to Dembski's major objective, which is to find a reliable method to *detect* design: "Even though specified complexity is not a reliable criterion for *eliminating* design, it is a reliable criterion for *detecting* design."¹⁶ If Dembski's Design Inference errs only on the side of stringency, then it would only produce false negatives and not false positives.¹⁷ Certainly this would not help the case of neo-Darwinists.

¹⁴ Dembski, *The Design Inference*, 35.

¹⁵ Norman Geisler and J. K. Anderson, *Origin Science* (Grand Rapids: Baker), 139.

¹⁶ Dembski, *The Design Revolution*, 95.

¹⁷ For example, we may fail to detect design which is in fact there because "intelligent causes can mimic undirected natural causes" (Dembski, *The Design Revolution*, 94), or because we do not know enough to recognize the intelligent pattern (e.g. a foreign language or a cryptosystem that we cannot break).

Alternatively, the Design Inference can be formulated as a valid deductive argument:

Premise 1: E has occurred.

Premise 2: E is specified.

Premise 3: If E is due to chance, then E has small probability.

Premise 4: Specified events of small probability do not occur by chance.

Premise 5: E is not due to a regularity.

Premise 6: E is due to either a regularity, chance, or design.

Conclusion: E is due to design.¹⁸

Since the above argument is valid, whether it is sound depends on its premises. The methodological presuppositions are contained in premises 4 and 6. Given these two premises and the appropriateness of their embedded concepts, premises 1, 2, 3 and 5 are open to empirical inquiry. So Dembski claims that the "related concepts of irreducible complexity and specified complexity render intelligence causes empirically detectable and make intelligence design a full-fledged scientific theory....It thus takes a long-standing philosophical intuition and cashes it out as a scientific research program."¹⁹

C. Application of Dembski's Theory to Biological Data

When we apply Dembski's theory to cases like insurance or plagiarism, it may raise some objections and causes some discussions. However, when Dembski applies Design Inference to biological systems, it causes a storm of objections and generates a lot of heat as well. (Many attacks on Dembski and the ID movement are pretty vicious.) Dembski clearly states that ID is committed to the following propositions:

¹⁸ Dembski, *The Design Inference*, 48.

¹⁹ Dembski, *The Design Revolution*, 37.

ID1: Specified complexity and irreducible complexity are reliable indicators or hallmarks of design.

ID2: Biological systems exhibit specified complexity and employ irreducibly complex subsystems.

ID3: Naturalistic mechanisms or undirected causes do not suffice to explain the origin of specified complexity or irreducible complexity.

ID4: Therefore, intelligence design constitutes the best explanation for the origin of specified complexity and irreducible complexity in biological systems.²⁰

Someone may reject Dembski's project simply by saying that biological systems do not need explanation. However, we note earlier that even Mackie admits that living things need some explanation. Furthermore, all the efforts of evolutionists are based on the conviction that life needs to be explained. If the existence of DNA needs no explanation, why bother about theories of chemical evolution? Evolutionists often accuse ID people of magic. If they assert that the first cell and all the information in the DNA are just there without explanation, then they seem to propose magic in the place of science as well. What features of life, then, demand explanation? It is interesting to note that Dawkins seems to agree with Dembski that it is because life possesses specified complexity. Dawkins²¹ emphasizes that a living thing is a complex thing consisting of many parts. Furthermore, the constituent parts are arranged in such a way that it is unlikely to have arisen by chance alone because the arrangement can be specified in advance. Mont Blanc is also a complex thing and its existence is also improbable

²⁰ Dembski, *The Design Revolution*, 42.

²¹ Dawkins, *The Blind Watchmaker*, chap. 1.

with hindsight. However, the complexity of a Boeing 747 is specified in advance to fly. Similarly, "however many ways there may be of being alive, it is certain that there are vastly more ways of being dead."²² So it's both the complexity and specificity of a living thing with respect to a function or design that cry for explanation. That conforms with Dembski's concept of specified complexity.

So even Dawkins may agree with ID2. To the problem is how the specified complexity of life comes into being. If we further agree that specified complexity is a characteristic property of human artifacts (e.g. computers), and products of intelligence in general (ID1), then ID4 seems to be a natural conclusion. What Dawkins would dispute is ID3. He admits that life "could not have come into existence in a single act of chance." He suggests that life comes into being "as a consequence of gradual, cumulative, step-by-step transformation from simpler things, from primordial objects sufficiently simple to have come into being by chance."²³ This is the claim of neo-Darwinian evolution, which we will further examine later.

Dembski emphasizes that the above Design Inference is different from the DA of traditional natural theology. The former helps us to identify events in the world which "exhaust the explanatory resources of undirected natural causes and can be adequately explained only by recourse to intelligent causes."²⁴ However, it "nowhere attempts to identify the intelligent cause responsible for the design in nature, nor does it prescribe in advance the sequence of events by which

²² Dawkins, *The Blind Watchmaker*, 9.

²³ Dawkins, *The Blind Watchmaker*, 14.

²⁴ Dembski, *The Design Revolution*, 37.

this intelligent cause had to act."²⁵ In particular, ID, unlike scientific creationism, does not depend on the biblical account of creation. Dembski even claims that "the designer underlying intelligent design need not even be a deity. To be sure, the designer is compatible with the creator-God of the world's major monotheistic religions, such as Judaism, Christianity and Islam. But the designer is also compatible with the watchmaker-God of the deists, the Demiurge of Plato's *Timaeus* and the divine reason (i.e. *logos spermatikos*) of the ancient Stoics. One can even take an agnostic view about the designer."²⁶ Of course all these further questions are of interest to Dembski, but he considers them to belong to the realm of theology and philosophy.

III. Evaluation of Theological Objections to Dembski

A. Objection from the Perspective of Theistic Evolution

I believe Dembski is correct to think that ID can be separated from theology because the issues concerning design detection, etc. can be discussed on empirical and philosophical grounds. However, ID is not completely theologically neutral because it has worldview implications. Once ID is accepted, the adequacy of the naturalistic worldview would be put into doubt because the naturalists are committed to the denial of ID3. Since naturalism is the major alternative to theism among educated people, by defeating naturalism, ID would certainly make more intellectual room for theism. However, among the critics of Dembski, besides naturalists, there are also some

²⁵ Dembski, *The Design Revolution*, 41.

²⁶ Dembski, *The Design Revolution*, 44.

Christian scholars who think Dembski's project is theologically defective.

For example, Van Till suggests the idea of a fully gifted creation (i.e. theistic evolution) to counter the ID movement from the Christian standpoint. He argues that evolution cannot be equated with naturalism, and the randomness of the evolutionary process doesn't imply the absence of cosmic purpose. Just as "human casino operators can employ random events to accomplish their purposes, could God not do so on a scale far more grand in the formational history of the creation?"²⁷ He believes that "God has so generously gifted the creation with the capabilities for self-organization and transformation that an unbroken line of evolutionary development from nonliving matter to the full array of existing life-forms is not only possible but has in fact taken place";²⁸ it is "a vision that recognizes the entire universe as a creation that has, by God's unbounded generosity and unfathomable creativity, been given all of the capabilities for self-organization and transformation necessary to make possible something as humanly incomprehensible as unbroken evolutionary development."²⁹

With this vision in mind, Van Till turns the tables against the creationists or ID theorists who believe in gaps in nature: "I find it theologically awkward to imagine God choosing at the beginning to withhold certain gifts from the creation, thereby introducing gaps into the creation's formational history — gaps that would later...have

²⁷ Howard J. Van Till, "The Fully Gifted Creation: Theistic Evolution," in *Three Views on Creation and Evolution*, ed. J. P. Moreland and John Mark Reynolds (Grand Rapids: Zondervan, 1999), 168.

²⁸ Van Till, "The Fully Gifted Creation," 171.

²⁹ Van Till, "The Fully Gifted Creation," 173.

to be bridged by acts of special creation."³⁰ In response to the criticism that this kind of universe makes God redundant, and hence leads logically to naturalism, Van Till argues that the reverse is true: such a wonderfully gifted universe makes most sense in Christian theism rather than naturalism:

Think for a moment, then, about how robust the universe's formational economy must be in order that something like cosmic or biotic evolution could be a genuine possibility. How could it be that not only does a "something" exist in place of nothing, but the "something" that exists is gifted with a set of formational capabilities so astoundingly robust that it is able to have actualized the whole array of its structures and life-forms in time? Could anything less than the creativity and generosity of God suffice? Would it actually make sense to posit, as do the preachers of naturalism, that a universe just happens to exist and that it just happens to have an astoundingly robust formational economy? Does naturalism provide anything even closely resembling an explanation? Is it not now abundantly clear that Christian belief in a creator provides a vastly superior framework in which to find the scientific concept of evolution to be a credible possibility?³¹

Van Till concludes, "I see the incredible fruitfulness of the creation's formational history as evidence, loud and clear, of God's uninterrupted blessing."³² He thinks that the Christian critics of evolution are just too concerned to find the difference God makes *in* the world. This suggests that God's actions can only be found in the gaps of scientific knowledge, and those outside the gaps owe nothing to God. According to Denis Alexander, another theistic evolutionist,

³⁰ Van Till, "The Fully Gifted Creation," 187.

³¹ Van Till, "The Fully Gifted Creation," 188-89.

³² Van Till, "The Fully Gifted Creation," 190.

this is not the robust biblical theism which believes God is fully present everywhere. Anyway, ID theorists' God is a mean God: "Instead of demonstrating the superior ability of the Christian faith to warrant a principle that embodies an exceptionally high view of the creation's abilities, critics of evolution have chosen to accept the concept of a less-than-fully gifted creation and to engage in a search for gifts withheld!"³³

Van Till has raised a lot of interesting questions which are worth exploring. I will not go into the exegetical and theological issues here. I just state my belief that theistic evolution is one of the possible options of an evangelical Christian (as Van Till himself is). It is *possible* that God has front-loaded all the information into the natural laws and the initial conditions of the universe in such a way that living things will emerge naturally. Dembski disagrees and thinks that the above position locating the design in laws alone is unstable. It would tend inevitably either toward full-blooded ID or naturalism.³⁴ "Babbage's programs, Augustine's seeds and Van Till's creaturely capacities are in each case principles instituted by the designer to produce the contrivances of nature. Yet they remain mysterious. They have no empirical content and are immune to empirical evidence."³⁵ On this issue I tend to agree with Van Till. I believe that a successful DA can be mounted without relying on gaps in nature: in view of the ingenious fine-tuning of the universe and its intricate laws, the cosmic design alternative may be more credible than the naturalistic view that all these are just brute facts has a careful formulation of this argument.³⁶

³³ Van Till, "The Fully Gifted Creation," 202.

³⁴ William A. Dembski, *Intelligent Design: The Bridge between Science and Technology* (Downers Grove: InterVarsity Press, 1999), 91.

³⁵ Dembski, *Intelligent Design*, 92.

³⁶ R. G. Swinburne, *The Existence of God*, 2d ed. (Oxford: Clarendon, 2004).

However, I do not agree with Van Till that God *must* have made nature without "gaps," and otherwise nature is "less than fully gifted" — this way of speaking is in fact pejorative. Even if the creation is not "fully" gifted, for the ID people, it is still wonderfully gifted beyond the expectation of a naturalist, and the suggestion that God owes creation something is not theologically acceptable. As for Alexander's argument that ID movement is contradicting "the robust biblical theism," it is also based on a misunderstanding. Dembski does divide things into the designed and non-designed but the latter category includes all the events brought about by natural causes in accordance with natural laws. As a theist, Dembski will certainly agree with Alexander that the non-designed (in the sense specified by his methodology) is ultimately designed (in the theological sense) by God. Alexander is attacking a straw man.

From a theological perspective, I think it is wise to insist that God is the primary cause of the creation, and then leave open how God did it. Such an approach encourages open inquiry and consideration of empirical evidence rather than a metaphysical assumption about how God must have done it. John Jefferson Davis rightly points out that Van Till "inadvertently minimize[s] the role of *extraordinary providence* and *miracle* in our understanding of the biblical texts, reducing, in effect, God's creative work to the category of "ordinary providence" — except in the case of the Big Bang origin of the space-time universe.... This would seem to be an impoverishment of the richness and variety of the biblically attested ways in which God relates to the natural order."³⁷ John Collins also argues that Van

³⁷ John Jefferson Davis, "Response to Howard J. Van Till," in *Three Views on Creation and Evolution*, 228.

Till's theological objection to ID does not match the Genesis picture of God's creative work: "If we say...that the work of creation being spread over six 'days' makes it sound more like a *project* than an *artifact*, then we see that the objection falls to the ground...as God's 'work,' nature is presented, not as all-sufficient, but as *sufficient for its assigned purpose*...one of nature's purposes is to be 'interfered with': after all, God's image-bearers will 'rule' (i.e. manage, direct and interfere with) nature as a result of their being in his image.... Nature...absorbs these interferences, co-operates with them, and supports their results; for this she was designed...it seems fair to conclude from Genesis *that* there are 'gaps,' but not necessarily *what* those gaps are."³⁸

Moreover, the DA without gaps does seem less robust in providing a check against the hegemony of naturalism, psychologically speaking if not rationally speaking. If the natural order is so remarkably "self-sufficient," then people would naturally query the need for the "God hypothesis" at all. So my suggestion is that both DA with gaps and DA without gaps need to be emphasized and integrated. For the sake of argument, we can concede that natural laws could account for the origin of life and so on, but then point out that the natural order which is so ingeniously fine-tuned is itself best explained by theism. However, we can also press the inadequacies of the naturalistic worldview, and explain why we have good reasons to believe some events or structures of nature are best explained by Intelligent Design.

³⁸ C. John Collins, *The God of Miracles: An Exegetical Examination of God's Action in the World* (Leicester: Apollos, 2001), 187.

Dembski does not think there are compelling theological reasons to prefer a "hands-off designer, even if it is couched as a Robust Formational Economy Principle."³⁹ Van Till's point only makes sense when the universe is compared to a watch. However, if we adopt other analogies, e.g. the creation as a musical instrument, then it stands to reason that God will "intervene" in the universe, just as an instrument is supposed to be played by a human person. Dembski does not reject the *possibility* of front-loaded design but he presses the question how plausible this thesis is on empirical grounds. He takes the example of the Cambrian explosion: "To be committed to front-loaded design means that all these body-plans that first appeared in the Cambrian period were in fact already built in the Big Bang... that the information for these body-plans were expressed in the subsequent history of the universe, and that if we could but uncover enough about the history of life, we would see how the information expressed in the Cambrian fossils merely exploits information that was already in the world prior to the Cambrian period. Now that may be, but there is no evidence for it. All we know is that information needed to build the animals of the Cambrian period was suddenly expressed at that time and with no evident informational precursors."⁴⁰ Van Till of course insists that the apparent discontinuity is only the result of our ignorance, but Dembski complains that "it would be entirely artificial to require that science nonetheless treat all design in the world as front-loaded just because methodological naturalism requires or because it remains a bare possibility that the design was front-loaded after all."⁴¹ At this point, our discussions have already touched upon the scientific and philosophical issues concerning ID.

³⁹ William A. Dembski, *No Free Lunch* (Lanham: Rowman and Littlefield, 2002), 344.

⁴⁰ Dembski, *No Free Lunch*, 345.

⁴¹ Dembski, *No Free Lunch*, 346.

IV. Evaluation of Methodological Objections to Dembski's Design Inference

A. We Can Never Be Sure of the Premises of ID?

The Design Inference needs to eliminate both regularity and chance, but we can never be sure of this. Robert O'Connor argues that ID assumes "certain contestable assumptions regarding both the scope and conceptual power of scientific inquiry," e.g. "if science does not know a specific process by which to account for these phenomena, then this provides sufficient reason to conclude that such a process does not exist."⁴² This is to "hold scientific inquiry in very high regard with respect to its capacity to accurately reveal the full scope of natural powers and processes, along with the actual antecedent conditions upon which those powers and processes work."⁴³ Since these are contentious philosophical premises, ID cannot claim a fully scientific status. Moreover, Design Inference cannot be made with any conviction.

I think O'Connor has misconstrued the intention of Design Inference. Although Design Inference can be formulated as a valid deductive argument, Dembski acknowledges that its premises "will in most applications be only probable or assertible rather than certain," but this fact "in no way limits the significance of the design inference... the conclusion has high probability if the premises have high probability... design inference is robust. It is not simply a piece of logic chopping. In particular, it is entirely suited to scientific inquiry

⁴² Robert O' Connor, "The Design Inference: Old Wine in New Wineskins," in *God and Design: The Teleological Argument and Modern Science*, ed. Neil A. Manson (London, New York: Routledge, 2003), 72.

⁴³ O' Connor, "The Design Inference," 73.

and the uncertainties that so often attend scientific claims."⁴⁴ I agree that ID is based on philosophical assumptions. However, as long as these assumptions are also needed by other recognized scientific disciplines, Dembski's defense of the scientific status of ID is not undermined. Contemporary philosophers of science recognize that the scientific enterprise is a fallible one. We can only make the best out of our data, and any conclusion we arrive at today necessarily face the risk of being overthrown by further data in the future. As Dembski points out, the "prospect that further knowledge will upset a design inference poses a risk for the Explanatory Filter. But it is a risk endemic to all of scientific inquiry. Indeed, it merely restates the problem of induction, namely, that we may be wrong about the regularities."⁴⁵ A risk-free science is no science at all.

It is true that logically speaking we can never be sure that an event is *not* due to regularity or mechanism because it is always a *possibility* that some unknown regularity will account for that event. However, "Specified complexity can dispense with unknown material mechanisms provided there are independent reasons for thinking that explanations based on known material mechanisms will not be overturned by yet-to-be-identified unknown mechanisms. Such independent reasons typically take the form of arguments from contingency that invoke numerous degrees of freedom. Sometimes they take the form of arguments from exhaustion: after repeatedly trying to achieve a result (say, transforming lead into gold), researchers become convinced that a result can't be achieved- period. Often additional theoretical grounds help strengthen the argument from exhaustion. Alchemy, for instance, was largely discarded before

⁴⁴ Dembski, *The Design Inference*, 54.

⁴⁵ Dembski, *The Design Revolution*, 91.

chemistry provided solid theoretical grounds for its rejection."⁴⁶ So "science must work with available evidence and on that basis (and that basis alone) formulate the best explanation of the phenomenon in question. This means that science cannot explain a phenomenon by appealing to the promise, prospect or possibility of future evidence. In particular, unknown mechanisms...cannot be invoked to explain a phenomenon."⁴⁷ If this rule is not respected, the alchemist can always say that an unknown mechanism will indeed turn lead into gold, and hence the current rejection of alchemy is unjustified.

Some other critics of ID also query the criterion of specified complexity. They demand logical or mathematical proof before they can accept specified complexity as a legitimate tool for science. However, "A requirement for strict proof...is entirely wrong-headed in the natural sciences...the skeptic imposes requirements so stringent that they are absent from every other aspects of science."⁴⁸ If we no longer insist on this unreasonable demand, we can see that the complexity-specification criterion in fact receives strong justification from the inductive generalization of our experience with design: "in every instance where specified complexity is present and where the underlying causal story is known... it turns out design is present."⁴⁹ If we reject Dembski's proposal which seems eminently plausible, can we produce a better account of our current practice of design detection? This is a challenge that the critics of Dembski need to face (unless they want to deny Design Inference altogether, which is even more implausible). Even the critic O'Connor says, "In the end, then, even if these information-rich systems do not underwrite a

⁴⁶ Dembski, *The Design Revolution*, 97.

⁴⁷ Dembski, *The Design Revolution*, 110.

⁴⁸ Dembski, *The Design Revolution*, 108.

⁴⁹ Dembski, *The Design Revolution*, 95-96.

'rigorous, scientifically demonstrable' argument for design, they do support explanation in terms of the intentional and transcendent choice of a personal agent. Therefore, inferring design does constitute an intelligent choice, that is, a rationally warranted, philosophically viable interpretation of certain remarkable empirical phenomena."⁵⁰ If Dembski has succeeded in doing this, this is no mean achievement already.

B. ID Is Not Empirically Fruitful?

A common complaint against creationism and ID is that these research programmes are not empirically fruitful whereas the theory of evolution has stimulated a lot of original scientific research. Moreland's comments on creationism below can also be used to defend ID: "Creationists and evolutionists do not need to attempt to solve a problem (e.g., a gap in the fossil record) in precisely the same way, nor do they need to employ the same types of solutions or the same ranking of epistemic values in their solutions. Creationists may elevate the value 'solve theological or philosophical internal and external conceptual problems' above the value 'offer solutions yielding empirically lines of new research'....There is nothing unscientific about this at all, and it is question-begging to claim that a criterion of empirical fruitfulness set by one research program (e.g., the search for evolutionary mechanisms) should be most important for a rival program and, if not, the rival is not even science or, if science, is not as rationally acceptable as its (allegedly) more empirical fruitful competitor."⁵¹

⁵⁰ O'Connor, "The Design Inference," 83.

⁵¹ J. P. Moreland, "Response to Robert C. Newman," in *Three Views on Creation and Evolution*, 145. Dembski thinks that "if intelligent design cannot be made into a fertile new point of view that inspires exciting new areas of scientific investigation, then (even if true) it will go nowhere." Dembski, *The Design Revolution*, 65. I do not think ID needs to make such a strong claim. Moreland's comments seem to be more balanced.

For example, "One rival will sometimes consider a phenomenon basic and not in need of a solution, empirical or otherwise. It may, therefore, disallow questions about how or why that phenomenon occurs and, thus, can hardly be faulted for not being fruitful in suggesting lines of empirical research for mechanisms whose existence is not postulated by the theory... it is naïve and question-begging to fault creationists for not developing fruitful problem-solving strategies for such gaps compared to their evolutionary rivals because such strategies are simply disallowed given that these phenomena are basic for creationists."⁵² For the Aristotelians, uniform motion needs to be explained but it is no longer the case in the Newtonian universe. Can the Aristotelians then claim that their paradigm is superior to the Newtonian one because it can accommodate lines of inquiry that are impossible in the Newtonian paradigm?

Moreover, it is too early to say whether ID can be empirically fruitful *in its own way* because this research program is still in the stage of infancy, and has hardly been tried at all by the scientific community. Some ID theorists claim that the ID has already stimulated original research which has largely been ignored by the evolutionary paradigm. For example, ID has led Kok, Taylor, and Bradley to make a prediction about functional specificity in amino acid sequences, and their research seems to bear this out.⁵³

⁵² Moreland, "Response to Robert C. Newman," 145-46.

⁵³ Moreland, "Response to Robert C. Newman," 147.

C. ID= Science-Stopper?

For Kenneth Miller, ID is a "nebulous theory that pretends to account for everything by stating 'well, that's the way the designer made it.'"⁵⁴ This caricature suggests that ID is not only empirically unfruitful, it is also a 'science-stopper.' However, this objection seems to assume that only the scientific study of natural processes is relevant, and that 'scientific research' is necessarily a good thing: the more the better. However, Collins raises a good question: "What if the identification of design closes off an *unfruitful* line of research? Who would listen to someone who proposed to explain Stonehenge by means of the properties of the rocks that make it up? I hope *my* tax dollars would never be used to fund the project! Once we decide that Stonehenge is designed, we leave off that line of questioning; but we do not thereby stop 'science.' Instead, we may ask what it is about the rocks that supports the design, where those rocks came from and how they got there, who were the people who made it, and so on."⁵⁵ So even if ID causes some scientific research along the naturalistic direction to stop, it would be a bad thing only if ID were false. Miller is begging the question against the ID theorists.

In fact there is no reason to think ID would stop scientific inquiry into the origin of life and biological systems. Since Design Inference is just a probable argument, its force depends on the status of the naturalistic alternative. We have to carry on research *as if* there is a scientific explanation. Only by persisting in this, can the ultimate question of origin be settled. However we cannot confuse this methodological axiom with ontological assumption. Methodologically

⁵⁴ Kenneth R. Miller, "Life's Grand Design," in *An Evolving Dialogue*, ed. James B. Miller (Harrisburg: Trinity Press, 2001), 469-70.

⁵⁵ Collins, *The God of Miracles*, 194-95.

both theists and atheists can carry on research as if a scientific answer is possible. The theists, however, believe that it is actually impossible and he hopes to bear this out by the research: throwing up even more anomalies or evidences for discontinuity in nature. Of course, if he is a theistic evolutionist, he should be even more diligently doing research to discover the beautiful laws designed by God which make life possible.

Moreover, ID may open up new lines of research. Dembski asks us to consider this causal chain in which a gap is present:

$A \Rightarrow B \Rightarrow C \text{ gap } D \Rightarrow E \Rightarrow F$

He says, "Even the gap between C and D is open to scientific scrutiny in the sense that we can compare C with D and determine the nature of the discontinuity between C and D. What's more, D itself may clearly indicate marks of having been intelligently designed, issuing in a design inference that convincingly answers the detectability question even though the precise causal predecessors of D are unclear."⁵⁶

D. ID $\neq$ Science?

Alexander claims that ID is a case of category confusion: "Saying that a particular aspect of cell biology is 'designed' does not account for it scientifically but belongs to a different category of explanation relating to ultimate purpose. Science is not equipped to deal with such matters, which properly belong to metaphysical discourse." I will not deal with this objection in detail because I think the most crucial distinction for Design Inference is whether it is a rational or irrational methodology rather than science or non-science.

⁵⁶ Dembski, *Intelligent Design*, 243.

To believe that there is no rational methodology outside science is only the prejudice of scientism. (I personally believe there are no good reasons to think ID can never achieve a scientific status — refer to the discussions of Bruce Gordon).⁵⁷

V. Evaluation of Scientific and Philosophical Objections to the Application of Design Inference to Biological Systems

A. ID= God of the Gaps?

The most common objection to the application of ID to biology is that it appeals to the ignoble God of the gaps. Alexander thinks that the claims of ID "look too similar to the old 'God-of-the-gaps' arguments, which proposed that because, for example, the eye is very complex, science could not explain it and therefore God must have made it. Stephen Meyer answers this charge... by arguing that the identification of 'irreducibly complex' systems in biology is based on what we know, not on what we don't know. But this is not the case. Most scientists would see what Behe calls an 'irreducibly complex' system as evidence of scientific ignorance and a challenge to further research." Similarly, Van Till interprets ID to be the argument that "if the scientific community cannot now, within the confines of its limited knowledge and limited conceptual vocabularies, give a complete and convincing account of the formation of life-form X or biotic subsystem Y, then X or Y could

⁵⁷ Bruce L. Gordon, "Is Intelligent Design Science? The Scientific Status and Future of Design: Theoretic Explanations," in *Signs of Intelligence: Understanding Intelligent Design*, ed. William A. Dembski and James M. Kushiner (Grand Rapids: Brazos Press, 2001).

have been first assembled only by the coercive action of some unidentified extranatural agent."⁵⁸ For him, it is an unconvincing appeal to ignorance!⁵⁹

I think by now it should be obvious that the above critics produce a mistaken characterization of Dembski's argument. Moreover, if we buy into Alexander and Van Till's assumptions, which amount to a form of methodological naturalism, there will be a curious consequence: whatever the amount of design and whatever degree of problems with evolution, evolution has still to be accepted because it is the only game in town. This is counterintuitive because ID at least has a *possibility* of being true. Adopting their philosophy would ensure that even if it is the truth, we would never discover it! For them, Designer or God are just unacceptable in science because invoking them would introduce a discontinuity. However, for what reason can we assert that nature must have no discontinuity? "What they have instead is a fervent *desire, preference, passion* for a universal seamless causation. This desire is certainly no more scientific than the opposite desire to worship 'God....' Moreover, we have very good reasons for believing that DNA could not have evolved from 'the accidental collocation of atoms'...whereas there is no good reason *not* to believe that intelligence is behind the evolution of DNA."⁶⁰ If we leave open the question of worldview, how can we know that the web of natural causes and effects must be wholly continuous instead of being designed? (These two need not be mutually exclusive alternatives: this world can be designed in such a way that nature is wholly continuous.)

⁵⁸ Van Till, "The Fully Gifted Creation," 218.

⁵⁹ Also see Robert T. Pennock, ed., *Intelligent Design Creationism and Its Critics: Philosophical, Theological, and Scientific Perspectives* (Cambridge, Massachusetts: The MIT Press, 2002), *passim*.

⁶⁰ L. S. Betty and B. Cordell, "God and Modern Science: New Life for the Teleological Argument," *International Philosophical Quarterly* 27 (December 1987): 433.

Methodological naturalism is often founded on a basic faith in a seamless universe. This position is subject to philosophical challenges: Is this position provable or rational? Is this an empirical fact or a priori assumption? As Collins pointedly asks, "Are physical explanations *always* adequate? By what right may we assume a priori that all 'gaps' are *lacunae ignorantiae causâ* and that none are *naturae causâ*?...the radical disjunction between, say, humans and other animals is obvious, and the more we know the plainer that becomes.... I do not think that alleviation of ignorance is going to change that picture, only accentuate it." He asks us to consider Stonehenge, which we all regard to be a product of intelligence: "No-one expects that knowing more about rocks will change that inference."⁶¹

Critics of ID typically believe that the ignoble God-of-the-gaps will recede into oblivion as science advances further and further — the past history of scientific progress has shown this to be true, they believe. There is no doubt some truth in it but it is a one-sided overstatement. As scientific knowledge advances and old gaps of knowledge are filled, more often than not new gaps are revealed or created. Moreover, in recent history, the " 'God of the gaps'...has been stood on its head. The gaps are proving to be more and more resistant to conventional theory. It is as if they are fighting back, resisting closure, frustrating every attempt to bridge them, and widening in the process....We find ourselves wondering if the term 'God of the gaps' may be used not by atheists to make fun of theists but by theists to remind atheists of the facts."⁶² This may be exaggerating and we need not delight in "gaps" as if only they can

⁶¹ Collins, *The God of Miracles*, 191.

⁶² Betty and Cordell, "God and Modern Science," 433f.

show the glory of God. Yet one should be open to the possibility of genuine gaps and try his best to judge, tentatively, whether anything is a genuine gap.

Even if the gaps of our knowledge are closing, is it sure ground to claim that all gaps, present and future, will be closed? Can we argue that since the 100m record is broken time and time again, it will be broken indefinitely or the record can reach 0.1s someday? If metaphysical naturalism is not presupposed, why can't we believe that there are genuine gaps in nature? Anyway, if we argue from the pattern of our past experiences, it is as justified to infer that some gaps will be closed as to infer that some new gaps will not. There is no strong reason to believe that at any definite time in the future, *all* gaps of knowledge will be closed.

So when one says that those gaps of today will be closed tomorrow, one is only making an assertion with no adequate basis. We also need to point out that we have no certain way to distinguish an apparent gap from a genuine gap *before* the gap is actually closed. Of course, critics of ID typically believe that the world is continuously capable, through its own *inherent properties and natural character*, of producing all kinds of wonderful living forms, conscious beings, self-conscious persons and so on. However, why should we believe this? As a matter of fact, current scientific accounts of the origin of life, the origin of the information in DNA, the emergence of complex organs (e.g. Behe's irreducible complexity), and all kinds of mental events like feelings, actions, beliefs, etc. are, to say the least, radically incomplete. Of course, it is not easy to argue that these apparent gaps *are* genuine gaps. It is equally hard to argue that these apparent gaps *are not* genuine gaps.

Although theism does not *need* gaps, it does not follow that there are no gaps. Yes, invoking God would introduce a discontinuity but for what reason can we assert that there should be absolutely no discontinuity? I am not advocating a slavish appeal to the-God-of-gaps, but it seems to me that the-God-of-absolutely-no-gaps is another dogmatic postulation justified by neither theological grounds nor scientific grounds. Dembski agrees that it is right to block lazy appeals to God, but there are "other times when searches are best given up....Sisyphus... should have given up rolling the rock up the hill long ago. We no longer look kindly on angle trisectors and circle squarers. We are amused by purported *perpetuum mobile* devices. Alchemists do not receive funding from the National Science Foundation. We deny the existence of unicorns, gnomes and fairy godmothers. In these cases we do not just say that the search for these objects is vain; we positively deny that the objects exist. Such details, such claims that certain searches are vain, such admissions that certain modes of discourse cannot succeed in solving certain problems are widespread, both in and out of science."⁶³ The lesson is that we may reach a certain point that it is reasonable to abandon the continuous search for natural causes.

B. ID Violates Methodological Naturalism and Endangers Science!

Accepting God's intervention would introduce a point of discontinuity in scientific inquiry. Then "the idea of nature as a 'seamless web' of causal connections, all of which are in principle discoverable and understandable, would have to be given up."⁶⁴ It is dangerous because it would open the floodgate to obscurantist

⁶³ Dembski, *Intelligent Design*, 244-45.

⁶⁴ Betty and Cordell, "God and Modern Science," 433.

"explanations." It would suffocate scientific progress if every time we encounter an anomaly, we appeal to God's actions. Because invoking God would endanger the integrity of science (so the naturalists worry), it has to be rejected as an answer to scientific problems. So a naturalistic answer is the only possible answer to the problem of origins.

The methodological worry is justified. However, ID does not suggest that every scientific anomaly should be explained by God. Most of the regular operations need not be. However, the origins of life and other biological structures were actually unique, unrepeatable events. ID insists that these events are best explained by invoking Intelligence *only when the totality of evidence points that way*. The Explanatory Filter requires us to go through rigorous procedures before making a design inference. Moreover, due to the explanatory priority inherent in the Explanatory Filter, every design inference made is falsifiable. As Behe points out, with regard to a particular biochemical system, the "claim of intelligent design is that '*no* unintelligent process could produce this system.'" The claim of Darwinism is that '*some* unintelligent process could produce this system.' To falsify the first claim, one need only show that at least one unintelligent process could produce the system. To falsify the second claim, one would have to show the system could not have been formed by any of a potentially infinite number of possible unintelligent processes, which is effectively impossible to do."⁶⁵ So ID is even more falsifiable than Darwinism, and hence more open to empirical correction. Acceptance of ID would in fact enrich but not endanger science.

⁶⁵ Michael J. Behe, "The Modern Intelligent Design Hypothesis: Breaking Rules," *Philosophia Christi*, series 2, vol. 3, no. 1 (2001): 178.

C. ID Cannot Explain Imperfect Design?

Kenneth Miller argues that evolution is much superior to ID because the former can explain many flawed designs in nature while the latter cannot. "Evolution, unlike design, works by the modification of pre-existing structures. Intelligent design, by definition, works fresh, on a clean sheet of paper, and should produce organisms that have been explicitly (and perfectly) designed for the tasks they perform."⁶⁶ So non-perfect design in nature falsifies ID and confirms evolution, which always works under constraints, and does not produce perfection. Examples of flawed design include the "inverted" neural wiring of the photoreceptor cells in the retina of the human eye, Gould's famous example of the panda's thumb, and the "junk" DNA in the human genome.

This is an intriguing argument against design which goes back to Darwin. There are several possible lines of defense open to the ID theorist. First, he can plausibly claim that ID does not commit to perfect or optimal design. For example, Dembski says, "A biological theory of intelligent design holds that a designing intelligence is required to account for the complex, information-rich structures in living systems. At the same time, it refuses to speculate about the nature of that designing intelligence. Whereas optimal design demands a perfectionistic, anal-retentive designer who has to get everything just right, intelligent design fits our ordinary experience of design, which is always conditioned by the needs of a situation and therefore always falls short of some idealized global optimum." So "there is no such thing as perfect design. Real designers strive for

⁶⁶ Miller, "Life's Grand Design," 463.

constrained optimization."⁶⁷ It follows that "to find fault with biological design — as Stephen Jay Gould regularly does — because it misses some idealized optimum is therefore gratuitous. Not knowing the objectives of the designer, Gould is in no position to say whether the designer has proposed a faulty compromise among those objectives or not."⁶⁸

Second, the ID theorist can challenge whether the allegedly flawed design is really flawed: "Just because we can always imagine some improvement in design does not mean that the structure in question was not designed, or that the improvement can be effected, or that the improvement, even if it could be effected, would not entail deficits elsewhere. And, of course, the charge of poor design may simply be mistaken."⁶⁹ For example, Dembski discusses the case of the inverted retina: "A visual system needs three things: speed, sensitivity and resolution. Speed is unaffected by the inverse wiring. Resolution seems unaffected as well (save for a tiny blind spot, which the brain seems to work around without difficulty). Indeed, there is no evidence that the cephalopod retina of squids and octopuses, which is 'correctly wired'...is any better at resolving objects in its visual field. As for sensitivity, however, it seems that there are good functional reasons for an inverted retina. Retinal cells require the most oxygen of any cells in the human body. But when do they require the most oxygen? Their oxygen requirement is maximal when incident light is minimal. Having a blood supply in front of the photoreceptors guarantees that the retinal cells will have the oxygen

they need to be as sensitive as possible when incident light is minimal."⁷⁰ As the biochemist Michael Denton says, "The very high energy demands of the photoreceptor cells in the vertebrate retina suggest that rather than being a challenge to teleology the inverted design of the vertebrate retina may in fact represent a unique solution to the problem of providing the highly active photoreceptor cells of higher vertebrates with copious quantities of oxygen and nutrients."⁷¹

Dembski does not claim that he proves the design of the eye to be optimal, but his comments suffice to show that we should be cautious about any claim that this or that biological design is flawed: "Simply drawing attention to the inverted retina is not a reason to think that eyes with the structure are suboptimal. Indeed, there are no concrete proposals on the table for how the human eye might be improved that can also guarantee no loss in speed, sensitivity and resolution."⁷² Furthermore, whether a biological design is flawed needs to be considered in the context of the entire ecosystem rather than just the individual organism: "Just because a design could be improved in the sense of increasing the functionality of some aspect of an organism, this does not mean that such an improvement would be beneficial within the wider ecosystem....A functionality belonging to a predator might be vastly improvable, but it also might render the predator that much more dangerous to its prey and thereby drastically alter the balance of the ecosystem...higher-order designs of entire ecosystems might require lower-order designs of individual organisms to fall short of maximal function."⁷³

⁶⁷ William A. Dembski, "Introduction," in *Signs of Intelligence: Understanding Intelligent Design*, 8.

⁶⁸ Dembski, "Introduction," 9.

⁶⁹ Dembski, "Introduction," 9.

⁷⁰ Dembski, *The Design Revolution*, 60.

⁷¹ Michael Denton, "The Inverted Retina: Maladaptation or Pre-adaptation?" *Origins & Design* 19:2 (1999):15.

⁷² Dembski, *The Design Revolution*, 60.

⁷³ Dembski, *The Design Revolution*, 61.

Third, the design theorist is not committed to every biological structure being designed. Mutation and selection do operate in natural history, and *some* biological structures may indeed be produced by the *ad hoc* process of evolution. "Perhaps the panda's thumb is such an adaptation."⁷⁴ The main thesis of ID is that naturalistic mechanisms are incapable of generating the highly specific, information-rich structures that pervade biology, and this is by no means contradicted by the above admission. Dembski likes to use the analogy of a car to illustrate this point: of course a car is designed but at the same time it is subject to forces of law and chance which produce a certain pattern of rusting on its surface. That some characteristics of an artifact are not the result of design does not imply that its basic structure is also not designed. We can use Miller's paper analogy as well. We can compare the design of living things to a beautiful poem written on a clean sheet of paper. However, after millions of years, accumulation of dirt and deterioration of the paper have rendered part of the writings illegible but on the whole we can still read enough to recognize the poem on the paper.

Fourth, Miller's argument from imperfection can be regarded as an argument for evolution only if we have good reasons to assume that natural selection is capable of producing complex, information-rich structures, perfect or imperfect. Even if the human eye is flawed in some respects, no one can deny that it displays ingenious design on the whole. To argue that since the flawed aspects of the eye can be explained by evolution, the whole thing must have been the product of naturalistic evolution, is analogous to arguing that since the rust of a car can be explained by law and chance, the whole car must have been the product of law and chance.

⁷⁴ Dembski, *The Design Revolution*, 63.

D. ID Has Ignored the Creativity of Natural Selection?

Many critics of Dembski think that he has overlooked the creative power of natural selection. They believe that natural selection, the combination of law and chance, could and did create all the complex life forms on earth. In a lecture on evolution in HKBU, the evolutionist Francisco Ayala gives an example which demonstrates how natural selection "has produced, in two steps, bacterial cells resistant to streptomycin and not requiring histidine for growth," an event that is "unlikely to occur" without the help of natural selection. However, it greatly puzzles me that this example involves the addition of a "proper concentration" of the antibiotic to the original bacterial culture, and then the transferal of the culture to an environment with streptomycin but with no histidine. It seems clear that we need somebody to set up the whole thing, do the operations and calculate the proper concentration. Is that really *natural* selection or *artificial, intelligent* selection? To assess the power of natural selection, we need to know how likely this two-step process would occur naturally. Moreover, this example at most shows that natural selection under some circumstances will favor some changes and not others, but it does not clearly show how a new complex organ or organelle can be created by natural selection. From my meager knowledge of biology, sometimes a bacteria can develop resistance to a certain chemical not by constructing new things but by dismantling or modifying the old structure which is prone to be attacked by that chemical. If this is already the best illustration of the "creative" power of natural selection, then we have reasons to suspect whether the evolutionist has overestimated this power, and glossed over the crucial problems of evolution.

When it comes to the crucial test case, the eye, Ayala's explanation is this: "Our ancestors had, for more than half a billion

years, some kind of organs sensitive to light. Perception of light, and later vision, were important for these organisms' survival and reproductive success. Accordingly, natural selection favored genes increasing the functional efficiency of the eye. Such genes gradually accumulated, until eventually the highly complex and efficient human eye emerged."⁷⁵ The above paragraph is a paradigm of the just-so stories offered by the evolutionists in place of a rigorous, testable scientific description of the process of evolution. For one thing, evolutionary explanations like the above seem too easy to come by. Even lay people can tell similar stories about any organ, no matter how complex it is, and without looking at any specific details.

The evolutionists may be right that any complex organ *could* be explained by natural selection, but it does not follow that this process is *likely to occur* or that that organ *did* evolve in a Darwinian fashion. Consider the above example of the human eye. What exactly are those light-sensitive organs which are the precursors of the human eye, and how do they transform gradually into the human eye? What are the stages on the way, and how can we be sure that each stage has selective advantage in its environment? What empirical evidence do we have for the actual existence of all those intermediate steps? Moreover, a primitive light-sensitive organ, when treated as a black box, may look simple in terms of its function. However, when we open the black box, it is likely to be composed of many molecular machines which are already very complex. Again, how do these complex molecular machines evolve step by step, and how can we prove that it is in fact what did happen? Evolutionists may come up with ingenious answers to all these questions. They may argue that

⁷⁵ Miller, "Life's Grand Design," 460. It contains a similar story.

the lack of intermediate steps can be easily accounted for. In this case, perhaps we can ask another question: Is the above evolutionary explanation of the human eye falsifiable? Ayala thinks that a "scientific explanation is tested by ascertaining whether or not predictions about the world of experience derived from the explanation agree with what is later observed." We would like to know what predictions can be derived from his evolutionary explanation of the human eye, and whether they agree with observations.⁷⁶

With respect to those irreducibly complex structures like the bacterial flagellum, Dembski points out that "no direct Darwinian pathway exists that incrementally adds these basic components and therewith evolves a bacterial flagellum. Rather, an indirect Darwinian pathway is required, in which precursor systems performing different functions evolve by changing functions and components over time... there is no convincing evidence for it...evidence from engineering strongly suggests that tightly integrated systems like the bacterial flagellum are not formed by trial-and-error tinkering in which form and function coevolve."⁷⁷ "If evolutionary biologists can discover or construct detailed, testable, indirect Darwinian pathways that account for the emergence of irreducibly and minimally complex biological systems like the bacterial flagellum, then...intelligent

⁷⁶ Many evolutionists now claim that a computer simulation of the evolution of the eye by Dan Nilsson and Susanne Pelger ("A Pessimistic Estimate of the Time Required for an Eye to Develop," *Proceedings of the Royal Society of London* 256 [1994]: 53-58) has demonstrated that this process could be completed in 500,000 years. See Matt Young, "How to Evolve Specified Complexity by Natural Means"; available from <http://www.pcts.org/journal/young_2002a.html> (accessed 11 July 2006). However, Berlinski shows that "Nilsson and Pelger's arguments are trivial and their conclusions unsubstantiated"; evolutionists' representations of their paper "have involved a serious, indeed a flagrant, distortion of their work."

⁷⁷ Dembski, *The Design Revolution*, 111.

design will quickly pass into oblivion. But until that happens, evolutionary biologists who claim that natural selection accounts for the emergence of the bacterial flagellum are worthy of no more credence than compulsive gamblers who are forever promising to settle their accounts."⁷⁸

E. ID Ignores the Possibility of an Infinite Universe?

Some other critics reply, "Even if further work suggests that a natural origin of life would imply a fantastic accident, those who believe in an infinite universe, containing an infinity of planets, need have no fear of statistics. In an infinite universe, anything that is possible must happen somewhere by pure chance."⁷⁹

However, as Dembski rightly points out, "It is illegitimate to rescue chance hypothesis by invoking probabilistic resources from outside the known universe. To do so artificially inflates one's probabilistic resources...one needs independent evidence whether there really are enough probabilistic resources to render chance plausible."⁸⁰ However, in the case of an infinite universe, we can have no empirical access to its infinity, and hence cannot even in principle admit independent evidence. Furthermore, "unlimited probabilistic resources allow us to explain absolutely everything by reference to chance," including "artificial objects that are in fact designed."⁸¹ Is it the chance of the gaps? It would also lead to absurd consequences: "Perhaps Shakespeare was an imbecile who just by chance happened to string together a long sequence of apt phrases.

⁷⁸ Dembski, *The Design Revolution*, 113.

⁷⁹ Paul Davies, *God and the New Physics* (New York: Simon & Schuster, 1983), 70.

⁸⁰ Dembski, *The Design Revolution*, 113.

⁸¹ Dembski, *The Design Revolution*, 122.

Unlimited probabilistic resources ensure not only that we will never know but also that we have no rational basis for preferring one possibility to the other."⁸² The "imbecile Shakespeare hypothesis" has been rightly excluded on its extremely small probability but we can no longer do this in an infinite universe! In an infinite universe, an imbecile Shakespeare is bound to appear somewhere by pure chance. How can we know that he was not in fact our Shakespeare?

VI. Conclusion

In this essay, I have tried to explain Dembski's methodology of Design Inference. This seems to be promising and ground-breaking. I have also looked at quite a number of objections to his methodology, and the application of design inference to biology. Some of these objections raise important questions which point to the need for further dialogue. None of them seem to be decisive. Of course, there are many other objections that we still need to look at, but enough has been said to suggest that Dembski's ID theory needs to be taken seriously. Of course much more hard work needs to be done to tie up the loose ends, and to show that the ID is a fertile research program, scientific or not.

⁸² Dembski, *The Design Revolution*, 122.

ABSTRACT

William Dembski's theory of Intelligent Design (ID) has rekindled the debate between creation and evolution. It has also attracted a lot of criticisms. Dembski argues that the explanation with reference to design is scientifically acceptable, and is even applicable to instances of biological design. He argues that empirical detection of design is possible, and the methodological exploration of this process (Design Inference) is entirely legitimate. By applying Dembski's theory to the biological data, he argues that intelligent design constitutes the best explanation for the origin of specified complexity and irreducible complexity in biological systems.

There are several methodological objections to Dembski's Design Inference. Critics allege that we can never be sure of the premises of ID because we can never completely eliminate both regularity and chance. They also argue that ID is not empirically fruitful, and is indeed a science-stopper. Moreover, ID is promoting the God of the gaps, and therefore violates methodological naturalism.

I look at these criticisms and point out many underlying misunderstandings. I also argue that methodological naturalism has limitations. In fact, ID is more falsifiable than Darwinism. My conclusion is that, Dembski's methodology of Design Inference seems to be promising. The objections are not decisive. Of course, much more hard work needs to be done to tie up the loose ends, and to show that the ID is a fertile research program.

撮 要

德布斯基 (William Dembski) 的智慧設計論在九十年代後崛起，既重新挑起有關生命起源和進化論的爭論，亦引來不少批評。德布斯基認為智慧設計論是一種合理甚至是合乎科學的選擇，因為我們可以在經驗層面察覺到智慧的設計，日常生活的例子亦俯拾即是。透過歸納這些例子，我們可以探索智慧設計的推論過程和方法論，所以設計推論 (Design Inference) 是完全合法的。而這種推論也可應用於生物學上，成為複雜而有特定性資訊的合理解釋。

很多人提出反對設計推論的理由，認為我們永遠不能確定智慧設計的前提，因為我們不能絕對排除定律（未來會發現的）和機遇的可能性。他們認為智慧設計論不能導引豐富的科學研究項目，甚至會扼殺科學；另外，亦指出智慧設計論提倡填隙的神 (God of the gaps)，是違反方法論的自然主義，最終只會摧毀科學。

筆者在本文中檢視了這些批評，並指出當中的誤解，以及方法論的自然主義的限制。事實上，智慧設計論比進化論（就生命資訊的起源而言）更易證偽。我的結論是：德布斯基的智慧設計論初步來看是合理的，也暫時找不到任何理由說它不是科學；然而，這個理論的確有待進一步發展。

對「漢語神學」的神學反思

郭鴻標

建道神學院
Alliance Bible Seminary

一、導言

莫特曼 (Jürgen Moltmann) 在祝賀香港漢語基督教文化研究所十周年紀念的賀辭中說：「我們〔筆者按：西方人〕應該理解一下中國正發生甚麼事。在另一方面，我們也應擁抱中國基督教：一主——靈。」¹ 莫特曼作為一位德國神學家，能夠有高度的自覺能力，留意到要從中國文化與宗教角度思考神學課題，進而檢視西方神學的內容，實在難能可貴。作為華人神學工作者，我們同樣應該嘗試從不同視域來思考神學課題。筆者過去從事潘能伯格及莫特曼研究，致力跳出高舉中國處境而漠視歷代基督教傳統，以及貶低從哲學概念思考神學的思想形態，力求對

¹ 〈莫特爾曼賀詞〉，《漢語基督教文化研究所通訊》2005年第2期，頁19。