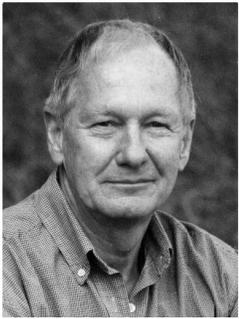


# Is the Creation a “Right Stuff” Universe?



By the formational economy of the universe, I mean the set of all of the universe’s resources ..., formational capabilities ..., and potentialities ... that have contributed to the formational history of the universe.

Does the universe, the creation to which God has given being, have the requisite resources, capabilities and potentialities (the “right stuff”) to actualize – without need for supplementary acts of form-conferring divine intervention – every kind of physical structure and biological organism that has ever appeared in the universe’s formational history? Yes, say proponents of a fully-gifted creation perspective. No, say advocates of Intelligent Design and other forms of episodic creationism. The relative merits of these two views, along with the manner in which proponents argue their cases, are the focus of concern in this overview.

**A**t the invitation of the PSCF Editor, I have prepared this paper to accompany Mark Discher’s essay, “Van Till and Intelligent Design.” I did not, however, provide a point by point rebuttal of that essay because the “work” most frequently cited by Discher is not anything that I have published, but a set of notes that I used as the basis for a lecture. Unfortunately, Discher was not present at that lecture and did not benefit from the discussion that, by design, it stimulated. Readers who are genuinely interested in what I have written regarding the relative merits of a fully-gifted creation approach and the strategy of the Intelligent Design (ID) movement will find the relevant references in the question and answer overview that follows.

## Questions and Answers on the Central Issues

### 1. What is the RFEP?

The peculiar acronym RFEP stands for the *Robust Formational Economy Principle*. By the *formational economy* of the universe, I mean the set of all of the universe’s *resources* (such as its elementary particles and their modes

of interaction), *formational capabilities* (such as the capabilities of atoms to form molecules), and *potentialities* (such as all possible molecular configurations) that have contributed to the formational history of the universe. To say that the universe satisfies the RFE Principle is to posit that the formational economy of the universe is sufficiently robust (amply equipped) to make possible—without need for supplementary acts of form-conferring divine intervention—the actualization of every category of physical structure and biological organism that has ever appeared in the universe’s formational history.

Stated slightly differently, a universe that satisfied the RFE Principle would have *no gaps in its formational economy*. Nothing would be missing from the universe’s resources, capabilities, or potentialities that would prevent it from actualizing (assembling by the exercise of its formational capabilities) any type of physical structure (like a planet or a protein) or any type of organism that has appeared in the course of time. The RFE Principle is a postulate regarding the character of the universe, not a claim for completeness or certainty in our knowledge of it.<sup>1</sup>

Readers who find the acronym RFEP burdensome may wish to think of it in the less formal terminology of a “right stuff universe principle” that says, in effect, the universe has “the right stuff” to make possible something as remarkable as an uninterrupted evolutionary development of physical structures and life forms.<sup>2</sup>

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## **2. If the universe satisfies the RFEP, is divine creative action thereby excluded or somehow made “remote”?**

Not at all. The RFEP (or the *right stuff universe principle*) says nothing either for or against the reality of divine action in the universe. For Christians the question is not, “Does God act in the creation?” By both conviction and experience, we profess that God does act in the world and in our lives. No, the question at issue here is, “What is the character of the creation in which God acts?” That’s the question to which the RFEP proposes an answer.

Now, if the creation has the particular character described by the RFEP—that is, if the *creation* is a *right stuff universe*—then we would infer that divine creative action of the *form-conferring intervention type* is not necessary to effect the Creator’s will for the universe’s formational history. The RFEP is silent, however, on all other questions regarding divine action. Divine action in any category other than form-conferring intervention may be as close (proximate) and intimate as one’s theology posits.

Some critics have expressed the concern that the absence of gaps in the creation’s formational economy effectively confines divine action to the remote past and stands in the way of God’s continuing action in the creation. I am baffled by that fear. As far as I know, historic Christian theology has never posited that God is able and/or willing to act only within gaps in the creation’s formational or operational economies. That being the case, then the absence of such gaps presents no theological loss whatsoever.<sup>3</sup>

## **3. Why does the scientific community judge that the universe satisfies the RFEP?**

The vast majority of scientific investigation, especially of the universe’s formational history, is conducted in the context of a working assumption that the universe does indeed possess a robust formational economy—that all manner of physical structures and life forms have been actualized in time by the employment of the universe’s formational capabilities to organize its resources into new configurations that were potentially achievable from the beginning. How did this approach come about? On what basis did the scientific community come to accept the RFEP as a working principle?

Many Christian critics have charged that this situation is nothing other than a clear indication that the “scientific establishment” (whatever that means) has sold its soul to a God-denying, naturalistic world view. In my judgment, such a charge is both profoundly inaccurate and grossly unfair. Maximal naturalism (the view that Nature is all there is, and it needs no Creator to give it being) has no substantive claim to ownership of the RFEP and Christians seriously err, I believe, when they reject the RFEP in the fear that accepting it would weaken their apologetic engagement with atheism.<sup>4</sup>

Is the scientific community’s acceptance of the RFEP then merely a convenient presupposition “pulled out of thin air”? Certainly not. On the contrary, *it is a reasonable judgment reached on the basis of the cumulative experience of the natural sciences*. Three centuries ago geology could seriously entertain the theory that a global flood within human history—initiated and directed by supernatural intervention—contributed in a major way to the formation of numerous terrestrial features. However, in the face of both empirical and theoretical considerations, the enterprise of *flood geology* based on that concept failed to provide adequate explanations of actual geological data and was abandoned because of its scientific inadequacy.<sup>5</sup>

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Similarly, there was a time (from approximately mid-eighteenth to mid-nineteenth century) when biology could seriously entertain the theory that each *species* (later revised to *genus*, then *order*) was independently formed by the direct action of a Creator. But this concept of *special creation*—a working biological theory rooted more deeply in Platonic idealism than in biblical or theological requirements—failed to hold up under the weight of empirical evidence.<sup>6</sup> In light of the observational evidence gathered by Darwin and many others, the scientific community came to the realization that the theory of special creation failed to provide adequate explanations for the biological data and, like flood geology a century earlier, had to be abandoned for its scientific shortcomings.

In both geology and biology, scientific theories in which occasional episodes of supernatural, form-conferring intervention played a central role were given full opportunity for scientific success, but they failed nonetheless. In contrast, theories founded on the premise of the RFEP were demonstrated to be far more fruitful in accounting for an immensely broad range of empirical data. Similar experiences could be recounted in the arenas of astronomy and cosmology in their endeavors to craft theories pertaining to the formational histories of stars, planets, galaxies, the elements, and even space itself. The RFEP is now generally accepted by the scientific community, not out of an anti-theistic prejudice or by arbitrary presupposition, but as the outcome of an extended historical process of evaluating

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scientific theories and the meta-scientific principles (like the RFEP) on which specific theories are built.

#### **4. Why do I judge that the creation is a right stuff universe?**

Having summarized what I believe to be the principal reason why the scientific community judges the RFEP to be a faithful statement about the character of the universe, I want to comment briefly on why I am personally inclined to make a similar judgment—why I judge the *creation* to be a *right stuff universe*.

First, the concept of a creation that is robustly equipped with every physical resource, every formational capability, and every configurational potentiality that would be needed to accomplish the Creator's will for the actualization of all manner of creaturely forms resonates with my theological inclinations. My theological perspective leads me to experience everything that the universe *is*, everything that the universe is capable of *doing*, and everything that the universe is capable of *forming* as a manifestation of the Creator's unfathomable *creativity* (in conceptualizing the remarkable character of the universe) and unlimited *generosity* (in giving such fullness of being to the universe).

I emphasize this because I think Christians often have tended to look for evidence of God's creative work in the wrong places. There is, for instance, a tradition of positing a need for divine creative work in circumstances that we do not (yet) fully understand. *Flood geology* looked to the concept of a supernaturally supervised global flood to explain certain puzzling geological formations, such as marine sediments exposed high in mountainous regions. *Special creation* sought to explain the actualization of each fundamental kind of life form by appeal to a set of independent, form-conferring, divine interventions.<sup>7</sup> In these and many other instances, episodes of extraordinary divine action were posited in part as a means to solve what first appeared to be mysteries for which no "natural" explanations could be found, or even imagined. In the absence of knowledge regarding the processes of mountain building, extraordinary divine action could be posited as the explanation for high

altitude marine deposits. In the absence of knowledge regarding genetic variation and differential survival rates, form-conferring divine action could be posited as the explanation for biological diversity and adaptation.

I have grown increasingly uncomfortable with this line of thought. In each case, divine action is brought in as a means of compensating for something the creation was not equipped to do—building mountains, carving canyons, or actualizing new species. In each case, the Creator's action serves to fill in for what the creation *cannot* do. But if the universe is a creation, and if everything the creation *is*, and everything the creation is capable of *doing* and *forming* is a "gift of being" given to it by the Creator, then I believe that we should be inclined to have high expectations regarding what the creation *can* do.<sup>8</sup> If every resource, capability and potentiality is the Creator's gift to the creation's being, then I am inclined to see the Creator in everything that the creation *can* do and to celebrate each of those gifts as a manifestation of the Creator's creativity and generosity.<sup>9</sup>

A second reason for my judging that the *creation* is a *right stuff universe* is that I find myself in agreement with the consensus of scientific judgment on the warrant for taking the RFEP as a faithful description of the universe. I make no claim that it can be proved in the narrow logical sense. No particular scientific theory—and certainly no broad meta-scientific principle like the RFEP—can be proved in this restricted sense. With the scientific community, I am making a judgment call and I have no hesitancy to say so. However, it is a judgment call made, not in a vacuum, but against the background of centuries of scientific experience.

In my recent letter to *PSCF*, I called attention to an episode in which astronomers had vastly underestimated the formational capabilities of atoms to form complex molecules in the cold, low density environment of interstellar clouds.<sup>10</sup> I then commented:

Against the background of such episodes in the history of science, I am inclined toward the judgment that our failure to understand how certain molecular or biotic structures could have been assembled for the first time is an indication, not of missing capabil-

My theological perspective leads me to experience everything that the universe is, everything that the universe is capable of doing, and everything that the universe is capable of forming as a manifestation of the Creator's unfathomable creativity ... and unlimited generosity ...

ities or low probabilities, but of the limited power of human imagination. I could be wrong, but “that’s the horse I’m betting on.”

As in all scientific judgments, I am open to being shown wrong; but until I see arguments far more convincing than I have seen so far, I am happy to express this judgment candidly. Other Christians have a right to disagree with my evaluation, but it would be a shameful misrepresentation of the truth for them to dismiss the RFE Principle as nothing more than the product of obdurate naturalistic prejudice or to declare that they *know*, or have *empirically demonstrated*, the RFEP to be false.

### 5. What is episodic creationism?

I use *episodic creationism* in place of the more familiar term, *special creationism*. As I noted earlier, *special creation* refers to the once held biological theory that each *species* was independently formed by direct divine action. I use the adjective *episodic* in place of *special* (1) because the relationship of the words *special* and *species* seems largely forgotten, and (2) because of the increasing emphasis placed on positing occasional *episodes* of supernatural, form-conferring intervention. The episodic character of occasional form-conferring interventions contrasts with the continuity of formational processes (usually denoted as *evolution*) now envisioned by modern science.

What is the source of this concept? In the present context, I believe that we have ample warrant for positing that the primary *motivation* for holding an episodic creationist picture of divine creative action (whether of the young-earth or old-earth variety) is the belief that the Bible teaches it, especially in Genesis 1. I would not say that *all* claims made on behalf of episodic creationism derive from the Bible. Numerous appeals to empirical science have been made in support of a concept of this general character, but the concept itself derives from a particular reading of the biblical text and a conviction regarding the correctness of this reading. Of course, the fact that a belief is religiously motivated has no necessary implications regarding its credibility in relation to scientific considerations.

### 6. What is folk science?

Several years ago, some of my colleagues and I employed the term “folk science” in our evaluation of episodic creationism, especially of the young-earth, “creation science” variety.<sup>11</sup> Drawing primarily from the work of Jerome Ravetz, we defined *folk science* as *a set of beliefs about the natural (creaturely) world, beliefs whose primary function is to provide comfort and reassurance that other worldview beliefs – already in place – remain credible, even in the face of substantial criticism from the professional sciences.*

Folk science differs from professional natural science (in its ideal form) in a number of ways, but especially in

the matter of motivation. The motivation for professional science should be none other than to learn true things about the character of the world. Working assumptions may be necessary for methodological purposes, but openness to their modification or even refutation is the ideal attitude. This includes, of course, the possibility that even long established and confidently held meta-scientific principles like the RFEP may some day fail. As noted earlier, I would be surprised to see that happen, but I cannot rule it out as a theoretical possibility.

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Folk science has a different primary motivation—the affirmation of worldview beliefs already in place. If the worldview beliefs are correct, this motivation could conceivably be beneficial to one’s scientific endeavors. But I am afraid that instances of such benefit are quite rare. Folk science is inherently vulnerable to the effects of prejudice in scientific theory evaluation. In *Science Held Hostage* and *Portraits of Creation*, we evaluated creation science as the folk science of young-earth episodic creationism and documented a number of instances in which scientific theory evaluation had been seriously compromised by the desire to affirm religiously motivated beliefs already in place.<sup>12</sup>

### 7. Are the particular theories of episodic creationist folk science necessarily suspect?

No, the designation of *folk science* speaks only to matters of motivation and does not entail either the truth or falsehood of specific theories. However, folk science is especially vulnerable to the temptation of building a case for a predetermined conclusion. As Robert E. Snow noted:

There is nothing inherently disreputable about folk science, but folk sciences bear watching because of the intellectual and religious mischief they may produce. Folk science provides a standing invitation to the unwary to confuse science with religion ... or to allow the religious perspectives present in the folk science to feed back into the scientific world to distort its development. It is just this latter process that creation scientists say has allowed evolutionism to derail much of modern science, while many who object to creation science repay the compliment in their dismissal of creationist claims as thinly veiled religious advocacy.<sup>13</sup>

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### 8. Where does Intelligent Design (ID) fit into this picture?

The Intelligent Design movement has attracted a great deal of attention since the publication of Phillip Johnson's *Darwin on Trial*.<sup>14</sup> Key works published by other ID advocates since that time include Michael Behe's *Darwin's Black Box* and William Dembski's *The Design Inference*.<sup>15</sup> Paraphrased as succinctly as possible, the following is what I take to be the ID movement's most basic claim in the arena of biology: *We have indisputable empirical evidence that some biotic system X (where X could be a part of an organism, a whole organism, or even the entire system of life on earth) could not possibly have been assembled – at least not for the first time – by purely natural means (whether by regularity or chance). Therefore, X must have been intelligently designed.* In other words, the RFE Principle is *not* considered to be a faithful description of the character of the universe. The formational economy of the universe (its menu of natural resources, capabilities, and potentialities) is *not* considered to be adequate to account for the formation of certain biotic structures. Some non-natural action (called acts of "intelligent design") must, it is claimed, supplement natural processes in order to accomplish certain formational feats that natural action alone presumably could not.

Having argued against the possibility of the "natural" formation of certain biotic systems, what model for extra-natural action does ID offer in its place? No specific models have been proposed, only the broadly stated conclusion that these novel biotic configurations must have been brought about by the action of some non-natural, intelligent agent. However, if all *natural* agencies have actually been demonstrated to be inadequate to the task of actualizing certain biotic configurations, then we are left, it seems to me, with only *supernatural* agents to do the job.<sup>16</sup> Although any candid specification of the identity of that extra-natural agent is strategically avoided in most of their literature, it is clear that the majority of ID proponents have in mind the Creator-God of the Judeo-Christian religion.<sup>17</sup> It is this divine "Intelligent Agent" who is presumed to have performed occasional form-conferring interventions to actualize certain biotic structures that the creation's inadequate formational economy was unable to actualize.

In other words, *the Intelligent Design proposal is a variant strain of episodic creationism.* As Dembski's expressed it: "... to reject fully naturalistic evolution is to accept some form of creation broadly construed, that is, the belief that God or some intelligent designer is responsible for life."<sup>18</sup> Furthermore, to the extent that the Intelligent Design movement is motivated by the desire to provide scientific warrant for its version of episodic creationism, *it also functions in large part as a folk science enterprise.*<sup>19</sup> Once again, that does not categorically eliminate the possibility that its conclusions could be correct, but it does remind us of the serious pitfalls faced by any science-like enterprise motivated by the desire to affirm religious worldview beliefs already in place.<sup>20</sup>

### 9. What is my evaluation of ID?

In a number of publications, I have offered my evaluation of claims made by the chief advocates of Intelligent Design.<sup>21</sup> The following, adapted and condensed from a published review, is a sample of my criticism of Dembski's book, *The Design Inference*.<sup>22</sup>

An event occurs. How can its occurrence be explained? According to Dembski, "Whenever explaining an event, we must choose from three competing modes of explanation. These are *regularity, chance, and design*" (p. 36). Dembski presents these three causal categories as both *mutually exclusive* and *exhaustive*, a very striking claim.

At first sight, this "trichotomy rule," as Dembski calls it, appears radically unrealistic. Are there really only three possible modes of explanation for the set of *all* events? How can this possibly be? The answer: *by definition*. The third category in Dembski's list, *design*, is simply *defined* to be *neither regularity nor chance*. "To attribute an event to design is to say that it cannot reasonably be referred to either regularity or chance" (p. 36).

Following this strategy, one might just as well say that all objects are colored either red, blue, or green, where "green" is defined to be "neither red nor blue." The design mode of explanation appears, at first, to be none other than the familiar "none of the above" option found on a multiple choice quiz.

To the extent that the Intelligent Design movement is motivated by the desire to provide scientific warrant for its version of episodic creationism, it also functions in large part as a folk science enterprise.

In place of the label, *designed*, one could presumably have used a light-hearted neologism like “muff-nordled.” However, it becomes clear in the course of the book that the “design” label is intended to take on a much more restricted operative meaning. The word “design,” like “green,” has a prior meaning whose influence is not easily suppressed.

So, why call this third catchall category by the name “design” in place of “none of the above” or “muff-nordled”? Because, says Dembski: “In practice, when we eliminate regularity and chance, we typically do end up with an intelligent agent. Thus in practice, to infer design is typically to end up with a ‘designer’ in the classical sense” (p. 36). As a historical example, Dembski offers the case of planetary motion. In Newton’s (mistaken) judgment, planetary orbits were inherently unstable and would need occasional adjustments by the direct intervention of God. In Dembski’s words: “... for Newton the proper mode of explanation for the dynamics of the solar system, though partially appealing to his laws of mechanics, also included an appeal to design, with design here taking the form of supernatural intervention” (p. 39). Thus the choice of “design” as the label for the catchall remainder category was clearly not arbitrary for Dembski, but was intended to convey a judgment (one that I find to be faulty) regarding the character of most events placed in that category.

The range of what constitutes an “event” in Dembski’s analytical scheme is enormous—the single flip of a coin, the rolling of a pair of dice, the opening of a bank safe by dialing the correct combination, the stable orbital motion of planets, even *the occurrence of life on planet Earth*. Nonetheless, any event from such a diverse pool of events can, says Dembski, be run through his “Explanatory Filter”—an algorithm for determining the appropriate mode of causal explanation. Those events that cannot reasonably be placed in either the *regularity* or *chance* categories are then, by process of elimination, attributed to *design*.

What is the connection between design and intelligent agency? Dembski gives very inconsistent signals on this key question. In the book’s epilogue, Dembski presents the connection as being very tenuous and open to varied possibilities. “In Chapter 2,” he says, “we defined design as the set-theoretic complement of the disjunction regularity or chance. Nothing in this definition entails a causal story, much less an intelligent agent, much less still a supernatural or occult power. Taken in its most fundamental sense, the word *design* signifies a *pattern* or *blueprint*. ... Frequently the reason an event conforms to a pattern is because an intelligent agent arranged it so. ... There is no reason, however, to turn this common

occurrence into a metaphysical first principle” (pp. 226–7).

But this strategic disclaimer is flatly contradicted by several statements made elsewhere in the book. For instance, early in the book Dembski informs us that “... in practice, to infer design is not simply to eliminate regularity and chance, but to detect the activity of an intelligent agent. Though defined as a negation, design delivers much more than a negation. ... There is an intimate connection between design and intelligent agency ...” (p. 62). Stated even more directly: “It’s now clear why the Explanatory Filter is so well suited for recognizing intelligent agency: for the Explanatory Filter to infer design coincides with how we recognize intelligent agency generally” (p. 66).

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*To be “intelligently designed” is, by implication, to be both conceptualized for a purpose, and assembled/formed by the action of an extra-natural agent.*

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What does Dembski here mean by “design” and “intelligent agency”? What exactly does it mean to be designed?<sup>23</sup> What does an intelligent agent do? “The principal characteristic of intelligent agency,” says Dembski, “is *directed contingency*, or what we call *choice*. ... Intelligent agency always entails discrimination, choosing certain things and ruling out others” (p. 62). As an example, Dembski asks the reader to consider two events in which ink is applied to paper. In one case, the ink is accidentally spilled onto the paper from a bottle. In the other case, a person writes a message on the paper with a fountain pen. Upon encountering the two pieces of inked paper and seeking causal explanations for the observed distribution of ink, it is clear, notes Dembski, that only one case demands an appeal to the action of an intelligent agent. The written message required a discriminating choice. The blotch of spilled ink did not.

Yes, but is a *discriminating choice* all that was required? Clearly not, and this is crucial to our present concern. *The intelligent agent also had to effect that choice*. He or she had to take pen in hand and write the chosen message. In Dembski’s example, and implicit in other literature of the Intelligent Design movement as well, *the “design” action of an intelligent agent is two-fold*. First, the mind of the agent must thoughtfully conceptualize something (what Dembski refers to as making a discriminating choice). But then the intelligent agent (or Intelligent Designer) must

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perform an *additional act* in order to *effect* what was first conceptualized or chosen. The agent in the inked paper example had to place the pen in contact with the paper and coerce it to move in a prescribed pattern. *Mind-action had to be followed by hand-action.* Since the materials at hand—pen, ink, and paper—did not possess the requisite capabilities to form a written message, the agent had to act directly to *force* a particular event to occur. To understand the essence of contemporary appeals to design, especially “Intelligent Design,” it is essential for us to see that the action in question is *two* actions, not one. Although most proponents of ID have chosen not to say so candidly, to be “intelligently designed” is, by implication, to be *both* conceptualized for a purpose, *and* assembled/formed by the action of an extra-natural agent.

One of the *events* that Dembski subjects to his Explanatory Filter is the one at the heart of our current concern—*life has occurred on planet Earth.*<sup>24</sup> What mode of explanation for that event would the filter select as most appropriate? The first step of Dembski’s filtering algorithm is to determine whether or not this event falls in the category of *regularity*. But the term *regularity* is, I believe, quite misleading. The real question here is not about some simple, deterministic, law-like regularity, but about the general *feasibility* of some outcome—whether it is the sort of event that could well happen in the context of all natural factors relevant to it.<sup>25</sup> The real question before us is, “Given this universe, with its vast menu of formational resources, capabilities and potentialities, is the eventual formation of some system of life feasible?” And the real answer is, “Only God knows.” William A. Dembski does not *know*. Michael J. Behe does not *know*. Phillip E. Johnson does not *know*.<sup>26</sup> Nobody *knows*. The best we can do is to make an informed judgment and say so honestly.

Earlier I stated my reasons for judging that the creation was fully gifted by its creative and generous Creator with the formational resources, capabilities, and potentialities to make the actualization of life on some planet highly probable.<sup>27</sup> I also freely acknowledged this to be an *informed judgment* rather than something that could be *proved* by computing a numerical value for the probability that life is an expectable

consequence of the creation’s robust formational economy. At the same time, however, it should be clear to everyone that Dembski must, with equal honesty, admit that he is in no better position than I to compute that probability value, unless he wishes to claim God-like omniscience. Furthermore, the only way that Dembski could claim *empirical* support for categorically excluding the event *life has occurred on planet Earth* from the causal mode *regularity* (more accurately, *natural feasibility*) would be to repeat billions of years of cosmic history numerous times and to show that life would never occur without episodes of form-conferring intervention.

With regard to the event *life occurred on planet Earth*, Dembski’s Explanatory Filter fails already at its first node. And, given its failure at the first node, there is no warrant for proceeding to the consideration of chance or design.<sup>28</sup> The specific question that cannot be answered at the first node is none other than the one we posed earlier: “Does the universe have a robust formational economy?” Dembski has every right to express his personal belief or judgment that the creation is not a right stuff universe, but *he has no warrant whatsoever for asserting that he has empirically demonstrated that to be the case.* As I see it, Dembski has demonstrated nothing more than the inclination to make highly exaggerated claims about the effectiveness of his Explanatory Filter algorithm.

People who prefer to believe that life could arise in this universe only as the outcome of irruptive, form-imposing acts by an intelligent agent (presumably God, in this case) will, I believe, just have to say so. There would be nothing wrong with the proponents of ID, or of any other form of episodic creationism, doing just that with candor. In fact, it would provide “ID theorists” with the ideal occasion for placing all of their theological and philosophical cards on the table where any interested observer could give these worldview commitments the thoughtful evaluation that they deserve. ★

### Notes

<sup>1</sup>The *gaps* to which I refer in this paragraph are formed not merely by missing knowledge (knowledge gaps) but by missing formational capabilities (capability gaps).

<sup>2</sup>One could also propose that the universe has the right stuff to actualize all life forms, not *sequentially* as in evolution, but *concurrently* as suggested by

Augustine, but there appears to be no scientific merit in that proposal. For further discussion on this see my essay, "Basil, Augustine, and the Doctrine of Creation's Functional Integrity," *Science and Christian Belief* 8, no. 1 (April 1996): 21-38.

<sup>3</sup>For additional remarks on the topic of divine action in the creation, see my letter of response to Peter Rüst in *Perspectives on Science and Christian Faith* 54, no. 1 (March 2002): 67, along with a number of references provided there.

<sup>4</sup>See my comments on "Who Owns the Robust Formational Economy Principle?" in *Science & Christianity: Four Views*, ed. Richard F. Carlson (Downers Grove, IL: InterVarsity Press, 2000), 217-20.

<sup>5</sup>Davis A. Young, *The Biblical Flood: A Case Study of the Church's Response to Extrabiblical Evidence* (Grand Rapids, MI: Wm. B. Eerdmans Publishing Company, 1995).

<sup>6</sup>Richard P. Aulie, "Evolution and Creation: Historical Aspects of the Controversy," *Proceedings of the American Philosophical Society* 127, no. 6 (1983): 418-62.

<sup>7</sup>—, "The Doctrine of Special Creation," *American Biology Teacher* (April & May 1972): 11-23.

<sup>8</sup>Note carefully that the "gifts" I am talking about here are not particular structures that could be inserted at any time, but resources, capabilities and potentialities that must be present from the beginning if they are to function as required. Some commentators have characterized my approach as one that posits a universe in which design or information was "front-loaded" at the beginning. That terminology, however, is foreign to my articulation of the "fully-gifted creation perspective."

<sup>9</sup>I have developed this line of thought more extensively in a number of places. See, for instance, "The Fully Gifted Creation," published as a chapter in the book, *Three Views on Creation and Evolution*, ed. J. P. Moreland and John Mark Reynolds, (Grand Rapids, MI: Zondervan Publishing House, 1999), 161-247, "Science & Christian Theology as Partners in Theorizing," published as a chapter in the book, *Science & Christianity: Four Views*, ed. Richard Carlson, (Downers Grove, IL: InterVarsity Press, 2000), 196-236, and "Basil, Augustine, and the Doctrine of Creation's Functional Integrity," *Science and Christian Belief* 8, no. 1 (April 1996): 21-38.

<sup>10</sup>See note 3.

<sup>11</sup>See Robert E. Snow's chapter, "A Critique of the Creation Science Movement" in Howard J. Van Till, Robert E. Snow, John H. Stek, and Davis A. Young, *Portraits of Creation: Biblical and Scientific Perspectives on the World's Formation* (Grand Rapids, MI: Wm. B. Eerdmans Publishing Company, 1990). See also Howard J. Van Till, Davis A. Young, and Clarence Menninga, *Science Held Hostage: What's Wrong with Creation Science AND Evolutionism* (Downers Grove, IL: InterVarsity Press, 1988).

<sup>12</sup>It should be noted that we also criticized several scientists who, especially when writing for the general public, also practiced a form of folk science when they distorted science in the service of warranting their naturalistic world views.

<sup>13</sup>Robert E. Snow, *Portraits of Creation*, p. 188.

<sup>14</sup>Phillip E. Johnson, *Darwin on Trial* (Downers Grove, IL: InterVarsity Press, 1999).

<sup>15</sup>Michael J. Behe, *Darwin's Black Box: The Biochemical Challenge to Evolution* (New York: The Free Press, 1996) and William A. Dembski, *The Design Inference: Eliminating Chance Through Small Probabilities* (Cambridge: Cambridge University Press, 1998).

<sup>16</sup>One does find in the ID literature occasional references to the possibility that extraterrestrial agents might be the intelligent designers, but it is hard to believe that this option is taken seriously by most advocates of the ID perspective. Furthermore, the question, "Were the extraterrestrial agents intelligently designed?" soon pops up.

<sup>17</sup>See William A. Dembski, *Intelligent Design: The Bridge Between Science & Theology* (Downers Grove, IL: InterVarsity Press, 1999).

<sup>18</sup>*Ibid.*, 115.

<sup>19</sup>One trait that I see as characteristic of folk science literature is the prevalence of exaggerated claims for the certainty and significance of its conclusions. In this light, consider Dembski's confidence that "... it will be intelligent design's reinstatement of design within

biology that will be the undoing of naturalism in Western culture" in *Intelligent Design*, p. 14, and Behe's declaration that "The observation of the intelligent design of life is as momentous as the observation that the earth goes around the sun or that disease is caused by bacteria or that radiation is emitted in quanta" in *Darwin's Black Box*, p. 233.

<sup>20</sup>For an informed commentary on the ID movement's motivation and agenda for action, see the essay by Barbara Forrest, "The Wedge at Work: How Intelligent Design Creationism Is Wedging Its Way into the Cultural and Academic Mainstream," in *Intelligent Design Creationism and Its Critics*, ed. by Robert T. Pennock (Cambridge, MA: MIT Press, 2002), 5-53. The term "folk science" is not used by Forrest, but its motivational dynamic appears on nearly every page of this essay. For instance, in reference to the ID movement Johnson is quoted as saying, "This isn't really, and never has been, a debate about science ... It's about religion and philosophy" (p. 30).

<sup>21</sup>See my essays, "Is the Creation's Formational Economy Incomplete? A Response to Jay Wesley Richards," *Philosophia Christi* 4, no. 1 (2002): 113-8; "Intelligent Design: The Celebration of Gifts Withheld?" published as a chapter in the book, *Darwinism Defeated? The Johnson-Lamoureux Debate on Biological Origins* by Denis O. Lamoureux, Phillip E. Johnson, et al. (Vancouver: Regent College Publishing, 1999), 81-90; and "The Creation: Intelligently Designed or Optimally Equipped?" in *Theology Today* (October 1998): 344-64, and reprinted in *Intelligent Design Creationism and Its Critics*, 487-512. Some relevant discussion can also be found in most of the references listed in note 9.

<sup>22</sup>Howard J. Van Till, "Does Intelligent Design Have a Chance?" *Zygon* 34, no. 4 (December 1999): 667-75.

<sup>23</sup>Behe's answer to this question implies that to be designed means to be assembled (at least for the first time) by some non-natural means. "The laws of nature can organize matter ... The most relevant laws are those of biological reproduction, mutation and natural selection. If a biological structure can be explained in terms of those natural laws, then we cannot conclude that it was designed" in *Darwin's Black Box*, p. 203.

<sup>24</sup>I infer that by "life" Dembski here means living creatures of any type at any time.

<sup>25</sup>In some theological systems, "natural" could include not only the system of all creaturely factors but also non-coercive divine action as an effective factor. For a brief discussion on this, see my letter in *Perspectives on Science and Christian Faith* 54, no. 1 (March 2002): 67, especially the comments on divine blessing and divine persuasion.

<sup>26</sup>According to Johnson, "We know that the Darwinian mechanism doesn't work and that complex biological systems never were put together by the accumulation of random mutations through natural selection," *Defeating Darwinism by Opening Minds* (Downers Grove, IL: InterVarsity Press, 1997), 94 (emphasis added).

<sup>27</sup>Discher has characterized this as a proposal for "remote intelligent causation." I find this label wholly unacceptable (1) because I see nothing "remote" about this divine action, and (2) because most ID literature maintains a strategic ambiguity regarding the effective equivalence of *intelligent causation* and *supernatural intervention* in the arena of biology.

<sup>28</sup>For the sake of argument, however, suppose a person made the tentative assumption that the universe does not have a robust formational economy. Suppose also that Dembski is correct in arguing that no form of life could be assembled by the chance arrival of all of its atomic and molecular constituents. The only conclusion that could be logically drawn from this is that, if the universe does not satisfy the RFEP, then episodes of form-conferring divine intervention seem essential for the formation of life on planet Earth. But we already knew that. In regard to the event life occurred on planet Earth, the "design" outcome of Dembski's Explanatory Filter is assured by the initial choice to declare natural causes inadequate at the first node. The extensive and laborious discussion in ID literature about "complex specified information" and "irreducible complexity" serves, at best, only to rule out "pure chance" at the remaining nodes.