

The Intelligibility of Intelligent Design?

NICANOR PIER GIORGIO AUSTRIACO, O.P.

*Providence College
Providence, Rhode Island
(Eastern Province - USA)*

According to its proponents, the intelligent design hypothesis holds that "certain features of the universe and of living things are best explained by an intelligent cause, not an undirected process such as natural selection."¹ In other words, in light of their critique of the Darwinian paradigm, design theorists propose that intelligent causality is a better explanation for the appearance and diversification of life on our planet than the Darwinian mechanism of natural selection working on random genetic variation. However, intelligent design (ID) proponents are hesitant to identify their intelligent designer. Instead, they insist that at this point they wish to focus solely on the detection of design. In *Darwin's Black Box*, Michael Behe writes, "Inferences to design do not require that we have a candidate for the role of designer... we can hold the conviction of design much more strongly than a conviction about the identity of the designer."² William Dembski concurs in his book, *The Design Revolution*:

In the case of intelligent design, the demand for details certainly applies to the antecedent circumstances that lead up to a creative innovation... Indeed, that is where much of the intellectual labor on intelligent design will focus in coming years, namely, in tracing the antecedent circumstances that lead up to and thereby condition the design of biological systems... The demand for details therefore remains a live issue for intelligent design. But it is not the primary issue. The primary issue is to determine whether there is design (i.e., creative innovation by an intelligence) in the first place.³

In other words, according to ID proponents, we can talk about detecting design without talking about a designer.

In this essay, I will suggest otherwise. I will propose that talk about detecting design necessarily presupposes talk about the designer. Otherwise, our talk risks becoming unin-

¹ www.intelligentdesign.org/whatisid.php. Last accessed on January 11, 2009.

² MICHAEL J. BEHE, *Darwin's Black Box: The Biochemical Challenge to Evolution* (New York: The Free Press, 1996), p. 196.

³ WILLIAM A. DEMBSKI, *The Design Revolution: Answering the Toughest Questions About Intelligent Design* (Downer's Grove, IL: InterVarsity Press, 2004), pp. 252-252.

telligible. I will begin by summarizing the two components of the intelligent design proposal. The first involves a negative critique of the Darwinian explanation for the origins of life by suggesting that the fossil and molecular evidence do not support evolution while the second affirms that intelligent causality is a better explanation for the appearance and diversification of life on our planet. However, I suggest that appeals to intelligent causality are only legitimate in everyday life and in science when they are accompanied by a reasonable explanation for the existence and the nature of the intelligent cause. Not surprisingly, therefore, Darwinists are demanding that ID theorists provide an account of the designer behind the intelligent design. Without it, I contend that the ID proposal remains incomplete because its central thesis of irreducible complexity remains unintelligible.

I

The ID proposal has two parts.⁴ The first involves a negative critique of the Darwinian explanation for the origins of life by suggesting that the fossil and the molecular evidence do not support evolution. This facet of the ID proposal was emphasized early in the history of the ID movement with the critiques of Michael Denton and Phillip Johnson and continues in the work of Jonathan Wells and Michael Behe.

Due in large part to its accessibility to the general public, the fossil record is one of the most commonly disputed pieces of evidence in the debate over the veracity of the Neo-Darwinian paradigm. ID theorists note that the fossil record in 1859 did not support the gradual evolution of species – a key prediction of the Darwinian paradigm – and not much has changed since. Instead, the fossil record shows most species appearing fully formed in the geological strata with few to no probable transitional forms appearing beforehand, followed by the persistence or the stability of form. As the best example of this, ID proponents point to the phenomenon commonly called the Cambrian explosion to show that the fossil evidence does not cohere well with the Darwinian view of evolution. Dated to about 540 Mya (million years ago), the Cambrian explosion was the geological time period when most of the biological diversity seen today appeared all at once in the fossil record. Moreover, proponents of ID argue that the fossil evidence suggests that evolution from that point on involved a top-down process: Almost all of the main body plans seen in extant species appeared in the Cambrian explosion and only then showed slight changes throughout time. Again, this is opposed to the Darwinian paradigm that predicts that evolution would involve slight changes over time leading up to the body parts and to the body plans we have today. Darwin acknowledged, as prominent evolutionists still do, the discrepancies between the fossil record and his theory. Stephen J. Gould,

⁴ The two sections summarizing the ID proposal are taken with modification from NICANOR AUSTRIACO, O.P. and MICHAEL G. LOUDIN, "Understanding the Controversy over Intelligent Design and the Acceptability of Intelligent Causality in Science," *Forum Teologiczne* 9 (2008): 29-39.

a well-known paleontologist at Harvard University, famously admitted, "The extreme rarity of transitional forms in the fossil record persists as the trade secret of paleontology."⁵ In fact, Gould and his colleague, Niles Eldredge, proposed their theory of punctuated equilibrium for the evolution of life in response to the fossil discrepancy. Gould concluded: "I wish in no way to impugn the potential validity of gradualism. I wish only to point out that it was never 'seen' in the rocks."⁶

Darwinists respond to this ID critique in various ways. First, they argue that transitional fossils do exist including the remains of fishlike amphibians (*Acanthostega gunnari*) and whalelike land mammals (*Ambulocetus natans*). In other words, the fossil record does have evidence for the gradual transformation of one species to another. Many also contend that it is inaccurate to suggest that body plans just appeared during the Cambrian explosion. There are fossils in rocks hundreds of millions of years older than those from the Cambrian period, but they are just not as common. Instead, evolutionary biologists explain that the explosion of fossils during the Cambrian is simply a result of the appearance of hard body parts including bones, teeth and shells, which appeared at that point in evolutionary history. These hard body parts are much more amenable to the becoming fossils. Thus, according to ID critics, the account of the Cambrian explosion proposed by ID advocates is not an accurate one since body parts, primarily soft body parts, predated the Cambrian period. Finally, evolutionary biologists point to recent research that has uncovered some classes of genetic mutations that do change the body plan quite radically and relatively quickly suggesting that any apparent sudden changes in body form could still be explained by standard biological mechanisms.

Next, ID theorists argue that the molecular evidence does not support evolution. Pointing to bacterial flagella, the blood clotting mechanism, and other complex molecular machines, they wonder why biologists are unable to describe an evolutionary pathway for the development of these molecular structures. Furthermore, they suggest that these molecular structures could not have evolved gradually because they are *irreducibly complex*. Michael Behe explains, "By irreducibly complex, I mean a single system composed of several well-matched, interacting parts that contribute to the basic function, wherein the removal of any one of the parts causes the system to effectively cease functioning. An irreducibly complex system cannot be produced directly...by slight, successive modifications of a precursor system, because any precursor to an irreducibly complex system that is missing a part is by definition nonfunctional. An irreducibly complex biological system, if there is such a thing, would be a powerful challenge to Darwinian evolution."⁷ This argument is frequently linked to a famous quote of Darwin's in the *Origin of Species*: "If it could be demonstrated that

⁵ STEPHEN J. GOULD. *The Panda's Thumb* (New York: W.W. Norton, 1985), p. 14.

⁶ Ibid.

⁷ BEHE, *Darwin's Black Box*, p. 39.

any complex organ existed which could not possibly have been formed by numerous, successive, slight modifications, my theory would absolutely break down."⁸ According to ID proponents, since there are numerous molecular machines that appear to satisfy this criterion – these machines are irreducibly complex and as such could not have evolved gradually – Darwinian evolution must be false.

This ID critique has been countered by evolutionary biologists in two ways. First, they assert that the absence of known evolutionary pathways for the molecular machines described by ID proponents is simply a sign of the incompleteness of science. In time, scientific research should uncover these pathways. Second, they have challenged the soundness of the argument for irreducible complexity by arguing that the individual parts of an irreducibly complex system need not have the same function as the system of which they are part in order for them to be selected for in evolution. They need only serve some function in the cell. Kenneth Miller, a professor of biology at Brown University, has pointed out that there is evidence that the component parts of the “poster boys” of irreducible complexity, including the bacterial flagellum, could perform other functions within the cell.⁹ For instance, the molecular structure of the bacterial flagellum suggests that it evolved from components of a Type Three Secretory System injector pump that were co-opted for the flagellum, suggesting an evolutionary pathway for the appearance of the bacteria’s molecular out-board motor.¹⁰ Within this historical scenario, seemingly irreducibly complex systems could have evolved by small sequential changes over time if components from disparate parts of the cell combined to form complex molecular machines.

II

In light of the critique of the Darwinian paradigm, the second part of the ID proposal affirms that intelligent causality is a better explanation for the appearance and diversification of life on our planet. Here, the argument is an appeal to common everyday experience and to the legitimate inclusion of intelligent causality in physics. It is an argument best understood with a discussion of the explanatory filter. This facet of the ID proposal has been developed in the writings of Michael Behe and William Dembski, who first proposed the explanatory filter.

The explanatory filter is a mathematical algorithm used to detect the presence of design in any system. In other words, it detects intelligent causality in the emergence or development of a system. The filter itself is actually rather straightforward.

⁸ CHARLES DARWIN, *Origin of Species*. (New York: Bantam Classics, 1999), p. 158.

⁹ For discussion, see KENNETH R. MILLER, “The Flagellum Unspun: The Collapse of “Irreducible Complexity.” in *Debating Design: From Darwin to DNA*. William Dembski and Michael Ruse, eds. (New York: Cambridge University Press, 2004), pp. 81-97.

¹⁰ For details and discussion, see MARK J. PALLEN and NICHOLAS J. MATZKE, “From *The Origin of Species* to the origin of bacterial flagella.” *Nat Rev Microbiology* 4 (2006): 784-790.

It consists of three levels, three steps in a process of elimination, which can be used to detect intelligent causes. The first level is that of a high probability event. Any event occurring with a high probability is judged to have occurred according to natural law. The next level of the filter is that of a medium probability event, any event that has a very low probability of occurring. A medium probability event is also judged to have occurred according to natural law. The last level of the filter is that of a low probability event, a medium probability event that also conforms to some pattern or ideal. Technically, such an event is called an event that manifests specified complexity. Any low probability event, any event with specified complexity, is judged to be designed. It involves intelligent causality.

The function of the explanatory filter is best illustrated with the probabilities involved in a poker game. The odds that one is dealt a royal flush are very small, but they are still within the realm of possibility since poker players are occasionally dealt a royal flush. However, the odds that one is dealt a royal flush *ten times in a row* are infinitesimally small. They are so small that any reasonable individual would probably conclude that the dealer is cheating. In other words, the ten royal flushes were designed. According to ID theorists, this commonsense logical process of inferring the presence of design, of intelligent causality, in poker games is precisely what the explanatory filter does: Since a royal flush dealt ten times has an infinitesimally small probability that conforms to a particular pattern, the pattern of cards we know as ten royal flushes, the explanatory filter would categorize it as a low probability event with specified complexity, pointing to the design inherent in the cheating of the dealer. The explanatory filter is simply a mathematical algorithm that formalizes what we do every day to detect intelligent causality in the world.

Finally, ID proponents point out that the explanatory filter is already being used in science. Physicists engaged in the task of detecting the presence of alien life in the universe including the SETI (Search for Extra-terrestrial Intelligence) Project have to use some form of the explanatory filter, some form of statistical and logical analysis, to separate signs of intelligent alien life from signs of natural processes occurring in space. Since the explanatory filter is legitimately used in physics, ID proponents wonder: Why is it illegitimate for ID theorists to use it in biology? With the SETI precedent in mind, Dembski calculated the probability involved in assembling a bacterial flagellum with random chance alone and showed that it is equivalent to the probability of being dealt 190 consecutive royal flushes. Therefore, he concluded that it must have been designed. Significantly, Dembski concludes, "It is the empirical detectability of intelligent causes that renders Intelligent Design a fully scientific theory, and distinguishes it from the design arguments of philosophers, or what has been traditionally called 'natural theology'."¹¹

¹¹ WILLIAM DEMBSKI, "The Intelligent Design Movement." Reprinted from *Cosmic Pursuit*, Spring 1998. Accessed on January 12, 2009, at http://www.arn.org/docs/dembski/wd_idmovement.htm.

Evolutionary biologists have responded to the explanatory filter by pointing out that a very low probability does not mean an impossible one since there is a difference between an improbable event not happening and one event of a certain number of improbable events actually happening. An often-cited textbook example involves the probability of a particular human being coming into existence. Any sexually reproducing pair of human beings can generate in excess of seventy quadrillion genetically unique embryos. In other words, in theory, a husband and a wife could have any one of seventy quadrillion possible children. Therefore, the probability of any one of them existing is one in seventy quadrillion. This is an exceedingly low probability, and yet, you and I exist. Mark Perakh, a professor of mathematics at California State University, Fullerton, explains that it is erroneous for ID proponents "to assume that an event whose probability is $1/N$, where N is a very large number, would practically never happen. This is absurd. If the probability of an event is $1/N$ it usually means that there are N equally probable events, of which some event must necessarily happen."¹² Darwinists therefore conclude that the explanatory filter is flawed because a low probability associated with a system cannot be used to determine if the system was designed or not. It could simply mean that the system is the one actual event of a certain number of improbable events. One other fundamental problem with the explanatory filter has also been suggested: It cannot distinguish false positives from real ones. Examples of these alleged false positives include the Fibonacci pattern often found in the biological world as well as the Benard cell, which is a honeycomb pattern of hexagonal cells of moving water produced when heat is applied to a wafer-thin film of water encased between two glass plates. According to ID critics, the explanatory filter would classify both of these natural processes as designed systems since they are low probability events that are complex and specified. This would undermine the reliability and efficacy of the explanatory filter.

In response, Dembski and other ID theorists have argued that the inclusion of a specificity factor in its third level of elimination allows the explanatory filter to distinguish random chance from design. Otherwise, could we ever conclude from the low probabilities associated with ten royal flushes that a dealer has cheated? With regards to the false positives, they contend that for one reason or another, both examples are red herrings that do not touch the relevant issues raised by the explanatory filter.¹³ Therefore, they conclude that the explanatory filter specifically and intelligent causality generally have a legitimate place in scientific explanation.

¹² MARK PERAKH, "Irreducible Contradiction." Accessed on January 12, 2009, at <http://www.talkreason.org/articles/behe2.cfm>.

¹³ For details, see WOODWARD, *Darwin Strikes Back*, pp. 148-152.

III

But can talk about detecting design remain divorced from talk about the designer? As I noted above, Behe, Dembski, and their colleagues suggest that it can. They are mistaken. To illustrate my point, let us return to the poker game. If a five-year old child dealt ten royal flushes in a row from a shuffled deck, it is unlikely that observers would suspect that she was cheating. Instead they would be confused. How did the child cheat? Was the deck of cards stacked? If so, who stacked the deck, and how did he stack the shuffled deck? The low probability event would remain unexplained – it would remain unintelligible – until someone provided a reasonable account to explain the actions of the alleged dishonest toddler. The same applies to the SETI Project. If astrophysicists working on the SETI Project detected a signal indicative of an intelligent alien civilization that appeared to emanate from the very center of our Sun, other scientists would question – rightly in my opinion – their conclusion. It is confusing. How could a civilization exist in the Sun? How could these aliens survive the tremendous heat? How could they exist without water? Suspecting an error in the statistical analysis involved, scientists would doubt the nature of the alleged alien signal of intelligence until a reasonable explanation for the possible existence of the solar aliens, or even better, independent evidence for their reality, is provided. In other words, an account of the designer makes the appeal to design intelligible. Examples like the two discussed here reveal that inferences to intelligence – to remain intelligible – presuppose an account of the intelligent agent.

A critic could challenge my conclusions by suggesting that the ID proposal does not involve unintelligible entities like dishonest toddlers or solar aliens. On the contrary, a locus of unintelligibility exists in ID's thesis that certain molecular machines in the living cell are irreducibly complex and as such are evidence of design. As we already cited above, in *Darwin's Black Box*, Behe originally defined an irreducibly complex system as "a single system which is composed of several interacting parts that contribute to the basic function, and where the removal of any one of the parts causes the system to effectively cease functioning." He went on to describe several apparently irreducibly complex systems including the bacterial flagellum and the human blood-clotting cascade. Each is made up of a complex of coordinated parts that work together to accomplish a single function. Behe then argued that systems like these could not have evolved in gradual steps. He concluded that they had to be designed. Presumably, these systems are instances of Dembski's "creative innovations by an intelligence," and as such, came into being at some moment in the past when the unidentified designer creatively introduced the genes encoding the components of the irreducibly complex system either into the bacteria or into the human being.

To my knowledge, however, no design theorist has discussed the implications of apparently irreducibly complex systems that have components from *two* separate organisms. Consider the HIV virus, the human pathogen responsible for AIDS. The

first step in the establishment of an HIV infection is the necessary interaction between the virus and the surface of the target human cell. This interaction is mediated by several molecular components that make up the HIV entry system. On the viral side, there is the viral spike made up of two parts, gp120 and gp41. One viral spike is made up of three gp120 and gp41 molecules. These make up the key. On the human side, there are two molecules that have been implicated in the fusion interaction, CD4, and another human protein, most often either CXCR4 or CCR5. These make up the lock. Infection of the virus, the key fitting into the lock, involves a stepwise interaction of these components. First, the viral gp120 proteins interact with human CD4 molecules, an interaction that facilitates a structural change in the viral gp41, which then allows them to interact with the second human protein. Completion of this step leads to the fusion of the virus with the cell allowing infection to proceed – the key opens the lock. Notice that this multi-component HIV entry system fulfills the definition of an irreducibly complex system. It is made up of interacting parts that are all essential for the function of the system to facilitate the entry of the virus into its host's cells. Moreover, loss of any one of these parts would disable the system hence the search for anti-HIV drugs that can interfere with this process.¹⁴

The HIV entry system challenges the intelligibility of the ID proposal. How do design theorists explain the origin of this apparently irreducibly complex system? Note that the HIV entry system is made of parts contributed by two independent organisms, parts encoded by two separate genomes. It is only one example of molecular machines composed of parts from two organisms where one organism is a virus and the other is its host. This system could not have arisen spontaneously as a single, unified whole. Did the designer creatively introduce the genes encoding the components of this irreducibly complex system into the two separate organisms? Furthermore, there is convincing evidence that HIV first appeared in the 1930s in East Africa suggesting that this apparently irreducibly complex system was designed less than one hundred years ago.¹⁵ Did the designer creatively introduce the genes for CD4 and CXCR4 in the human species in the distant past in anticipation of the introduction of the genes for gp120 and gp41 in the HIV viral species in 1930? If so, how was this done? Significantly, could this have been done by any other intelligent designer other than *the* intelligent designer commonly known as God?

Given these questions – and there are many others – it is not surprising that biologists are hesitant to accept the ID proposal as an explanation for the origins of the

¹⁴ For details and further discussion, see I. MARKOVIC and K.A. CLOUSE, "Recent advances in understanding the molecular mechanisms of HIV-1 entry and fusion: revisiting current targets and considering new options for therapeutic intervention," *Curr HIV Res.* 2 (2004): 223-234.

¹⁵ For details see, B. KORBER et al., "Timing the ancestor of the HIV-1 pandemic strains," *Science* 288 (2000): 1789-1796.

HIV entry system or any other apparently irreducibly complex system like it.¹⁶ As it stands, positing the immediate creative innovation of apparently irreducibly complex biological systems made up of components from two different organisms that appeared at different moments in history is confusing. It is unintelligible. It raises legitimate questions about mechanism and process that can only be clarified by an account of the identity and the nature of the designer behind the design. In *The Design Revolution*, William Dembski claimed: “The demand for causal details applies secondarily, not primarily, to creative innovation and therefore to intelligent design.” As I have argued, however, understanding creative innovation presupposes some understanding of the creator. So, who is the Intelligent Designer?

¹⁶ For discussion, see ROBERT T. PENNOCK, “God of the Gaps: The Argument from Ignorance and the Limits of Methodological Naturalism” in *Scientists Confront Intelligent Design and Creationism*, eds. Andrew J. Petto and Laurie R. Godfrey (New York: W.W. Norton & Company, 2007), pp. 309-338.