

Skepticism's Prospects for Unseating Intelligent Design

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Talk delivered at CSICOP's Fourth World Skeptics Conference in Burbank, California, 21 June 2002, at a discussion titled "Evolution and Intelligent Design." The participants included ID proponents William Dembski and Paul Nelson as well as evolutionists Wesley Elsberry and Kenneth Miller. Massimo Pigliucci moderated the discussion.

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This conference focuses on skepticism's prospects over the next 25 years. I want in this talk specifically to address skepticism's prospects for unseating intelligent design in that time. Though as a proponent of intelligent design I'm no doubt biased, I believe that over the next 25 years intelligent design will provide skepticism with its biggest challenge yet. I want in this talk to sketch why I think that.

A few years ago skeptic Michael Shermer wrote a book titled *Why People Believe Weird Things*. Most of the weird things Shermer discusses in that book are definitely on the fringes, like holocaust denial, alien encounters, and witch crazes -- hardly the sort of stuff that's going to make it into the public school science curriculum. Intelligent design by contrast is becoming thoroughly mainstream and threatening to do just that.

Gallup poll after Gallup poll confirms that about 90 percent of the U.S. population believes that some sort of design is behind the world. Ohio is currently the epicenter of the evolution-intelligent design controversy. Recent polls conducted by the *Cleveland Plain Dealer* found that 59 percent of Ohioans want both evolution and intelligent design taught in their public schools. Another 8 percent want only intelligent design taught. And another 15 percent do not want the teaching of intelligent design mandated, but do want to allow evidence against evolution to be presented in public schools. You do the arithmetic.

Perhaps the most telling finding of this poll is how Ohioans view the consequences for their state of having intelligent design taught in their public schools. According to the *Cleveland Plain Dealer* (June 9th), "About three of every four respondents said including intelligent design in the curriculum would have either a positive effect or no effect on the state's reputation or its ability to attract new business." One could hardly imagine the same response if the question were whether to teach astrology, witchcraft, or flat-earth geology. Intelligent design has already become mainstream with the public at large.

Even so, the mainstreaming of intelligent design doesn't cut any ice with skeptics. Skeptics know all about logical and informal fallacies, and the *argumentum ad populum* heads the list. Skepticism purports to keep a gullible public honest. Accordingly, just because intelligent design is acceptable to most Americans doesn't mean that it deserves acceptance (witness America's fascination with horoscopes). All the same, there's reason

to think that the usual skeptical assaults are not going to prosper against intelligent design.

One of skepticism's patron saints, H. L. Mencken, remarked, "For every problem, there is a neat, simple solution, and it is always wrong." Yet in writing about Darwin's theory, Stephen Jay Gould remarked, "No great theory ever boasted such a simple structure." Intelligent design claims that Mencken's insight applies to evolutionary biology, overturning not just mechanistic accounts of evolution but skepticism itself.

Skepticism, to be true to its principles, must be willing to turn the light of scrutiny on anything. And yet that is precisely what it cannot afford to do in the controversy over evolution and intelligent design. The problem with skepticism is that it is not a pure skepticism. Rather, it is a selective skepticism that desires a neat and sanitized world which science can in principle fully characterize in terms of unbroken natural laws.

Indeed, why have a skeptical organization with a name like CSICOP? The "COP" in CSICOP is not accidental. CSICOP is in the business of policing claims about the paranormal. The paranormal, by being other than normal, threatens the tidy world bestowed by skepticism's materialistic conception of science.

No other conception of science will do for skepticism. The normal is what is describable by a materialistic science. The paranormal is what's not. Given the skeptic's faith that everything is ultimately normal, any claims about the paranormal must ultimately be bogus. And since intelligent design claims that an intelligence not ultimately reducible to material mechanisms might be responsible for the world and various things we find in the world (not least ourselves), it too is guilty of transgressing the normal and must be relegated to the paranormal.

There is an irony here. The skeptic's world, in which intelligence is not fundamental and the world is not designed, is a rational world because it proceeds by unbroken natural law -- cause precedes effect with inviolable regularity. In short, everything proceeds "normally." On the other hand, the design theorist's world, in which intelligence is fundamental and the world is designed, is not a rational world because intelligence can do things that are unexpected. In short, it is a world in which some things proceed "paranormally."

To allow an unevolved intelligence a place in the world is, according to skepticism, to send the world into a tailspin. It is to exchange unbroken natural law for caprice and thereby destroy science. And yet it is only by means of our intelligence that science is possible and that we understand the world. Thus, for the skeptic, the world is intelligible only if it starts off without intelligence and then evolves intelligence. If it starts out with intelligence and evolves intelligence because of a prior intelligence, then the world becomes unintelligible.

The logic here is flawed, but once in its grip, there is no way to escape its momentum. That is why evolution is a nonnegotiable for skepticism. For instance, on two occasions I

offered to join the editorial advisory board of Michael Shermer's *Skeptic Magazine* to be its resident skeptic regarding evolution. Though Michael and I are quite friendly, he never took me up on my offer. Indeed, he can't afford to. To do so is to allow that an intelligence outside the world might have influence in the world. That would destroy the world's autonomy and render effectively impossible the global rejection of the paranormal that skepticism requires.

Skepticism therefore faces a curious tension. On the one hand, to maintain credibility it must be willing to shine the light of scrutiny everywhere, and thus in principle even on evolution. On the other hand, to be the scourge with which to destroy superstition and whip a gullible public into line, it must commit itself to a materialistic conception of science and thus cannot afford to question evolution. Intelligent design exploits this tension and thereby turns the tables on skepticism.

Skepticism's love affair with evolution predates Darwin. In fact, it is easily traceable to the atomist and mechanical philosophers of antiquity like Democritus, Epicurus, and Lucretius. Evolution throughout the ages has taught that all aspects of nature, biological complexity included, result from material mechanisms. Within contemporary biology, these include principally the Darwinian mechanism of natural selection and random variation, but also include other mechanisms (symbiosis, gene transfer, genetic drift, the action of regulatory genes in development, self-organizational processes, etc.). These mechanisms are just that: mindless material mechanisms that do what they do irrespective of intelligence. To be sure, mechanisms can be programmed by an intelligence. But any such intelligent programming of evolutionary mechanisms is not properly part of evolutionary theory.

Intelligent design, by contrast, teaches that biological complexity is not exclusively the result of material mechanisms but also requires intelligence, where the intelligence in question is not reducible to such mechanisms. The central issue, therefore, is not the relatedness of all organisms, or what typically is called common descent. Indeed, intelligent design is perfectly compatible with common descent. Rather, the central issue is how biological complexity emerged and whether intelligence played a pivotal role in its emergence.

Suppose, therefore, for the sake of argument that intelligence -- one irreducible to material mechanisms -- actually did play a decisive role in the emergence of life's complexity and diversity; how could we know it? This question is a special case of a more general question, namely: If an intelligence were involved in the occurrence of some event or the formation of some object, and if we had no direct evidence of such an intelligence's activity, how could we know that an intelligence was involved at all? This last question arises in numerous contexts, including archeology, SETI, and data falsification in science.

I want here to focus on data falsification because it will help point up the legitimacy of the techniques for design detection on which intelligent design depends. On May 23rd of this year the *New York Times* reported on the work of "J. Hendrik Schön, 31, a Bell Labs

physicist in Murray Hill, N.J., who has produced an extraordinary body of work in the last two and a half years, including seven articles each in *Science* and *Nature*, two of the most prestigious journals."

Schön's career is on the line. Why? According to the *New York Times*, Schön published "graphs that were nearly identical even though they appeared in different scientific papers and represented data from different devices. In some graphs, even the tiny squiggles that should arise from purely random fluctuations matched exactly." As a consequence, Bell Labs appointed an independent panel to determine whether Schön "improperly manipulat[ed] data in research papers published in prestigious scientific journals."

The theoretical issues raised in this case of putative data falsification are precisely those that my own work on design detection seeks to address. The match between the two graphs in Schön's articles constitutes an independently given pattern or specification. Moreover, the random fluctuations in the graphs are highly improbable. What's more, the randomness here is well-understood. As a consequence, no unknown mechanism is being sought for how the graphs from independent experiments on independent devices could have exhibited the same pattern of random fluctuations. At issue is the question of data manipulation and design, and we resolve it by identifying what I define as "specified improbability" or, as it's also called, "specified complexity."

Regardless whether specified complexity constitutes, as I claim, a sufficient condition for detecting design, it certainly constitutes a necessary condition. Essential to intelligent design is the ability to detect design in cases where the evidence is circumstantial and thus where we lack direct evidence of a designing intelligence. In the case of Schön's graphs, under the relevant chance hypotheses characterizing the random fluctuations in question, the match between graphs had better be highly improbable (if the graphs were merely two-bar histograms with only a few possible gradations in height, then a match between the graphs would be reasonably probable and no one would ever have questioned Schön's integrity). Improbability, however, isn't enough. The random fluctuations of each graph taken individually are indeed highly improbable. But it's the match between the graphs that raises suspicions. That match renders one graph a specification for the other so that in the presence of improbability a design inference is warranted.

By itself detecting design by means of specified complexity does not implicate any particular intelligence. Specified complexity could show that the data in Schön's papers were improperly manipulated. It could not, however, show that Schön was the actual culprit (though as first author on these papers he, like the captain on a proverbial sinking ship, would be in deep trouble). To identify the actual intelligence would require a more thorough causal analysis (an analysis that in the Schön case is being conducted by Bell Labs' independent panel).

I want now to bring this discussion back to the main question of this paper, namely, the prospects for skepticism to unseat intelligent design. To answer this question, let's first consider what intelligent design has going for it:

1. **A method for design detection.** There's much discussion about the validity of specified complexity as a method for design detection, but judging by the response it has elicited over the last four years, this method is not going away. Some scholars (like Wesley Elsberry here) think it merely codifies an argument from ignorance. Others (like Paul Davies) think that it's onto something important. The point is that there are major players who are not intelligent design proponents who disagree. Such disagreement indicates that there are issues of real intellectual merit to be decided and that we're not dealing with a crank theory (at least not one that's obviously so).
2. **Irreducibly complex biochemical systems.** These are systems like the bacterial flagellum. They exhibit specified complexity. Moreover, the biological community does not have a clue how they emerged by material mechanisms. The great promise of Darwinian and other naturalistic accounts of evolution was precisely to show how known material mechanisms operating in known ways could produce all of biological complexity. That promise is now increasingly recognized as unfulfilled (and perhaps unfulfillable). Franklin Harold, not a design proponent, in his most recent book for Oxford University Press, *The Way of the Cell*, states "There are presently no detailed Darwinian accounts of the evolution of any biochemical or cellular system, only a variety of wishful speculations." Intelligent design contends that our ignorance here comprises not minor gaps in our knowledge of biological systems that promise readily to submit to tried-and-true mechanistic models, but rather indicates vast conceptual lacunae that are bridgeable only by radical ideas like design.
3. **Challenge to the status quo.** Let's face it, in educated circles Darwinism and other mechanistic accounts of evolution are utterly status quo. That has advantages and disadvantages for proponents like yourselves. On the one hand, it means that the full resources of the scientific and educational establishment are behind you, and you can use them to squelch dissent. On the other hand, and especially to the extent that you are heavy-handed in enforcing materialist orthodoxy, it means that you are in danger of alienating the younger generation, which thrives on rebellion against the status quo. Intelligent design appeals to the rebelliousness of youth.
4. **The disconnect between high and mass culture.** It's the educated elite that love evolution and the materialist science it helps to underwrite. On the other hand, the masses are by and large convinced of intelligent design. What's more, the masses ultimately hold the purse strings for the educated elite (in the form of state education, research funding, scholarships, etc.). This disconnect can be exploited. The advantage that biological evolution has had thus far is providing a theoretical framework, however empirically inadequate, to account for the emergence of biological complexity. The disadvantage facing the intelligent-design-supporting masses is that they've had to rely almost exclusively on pretheoretic design intuitions. Intelligent design offers to replace those pretheoretic intuitions with a rigorous design-theoretic framework that underwrites those intuitions.

5. **An emerging research community.** Intelligent design is attracting bright young scholars who are totally committed to developing intelligent design as a research program. We're still thin on the ground, but the signs I see are very promising indeed. It's not enough merely to detect design. Once it's detected, it must be shown how design leads to biological insights that could not have been obtained by taking a purely materialist outlook. I'm beginning to see glimmers of a thriving design-theoretic research program.

What's a skeptic to do against this onslaught, especially when there's a whole political dimension to the debate in which a public tired of being bullied by an intellectual elite find in intelligent design a tool for liberation? Let me suggest the following action points:

1. **Conflate intelligent design with creationism.** I'm not sure how much longer this tactic will work because the public and press are now catching on to the difference, but as long as there's mileage to be obtained, go for it. Emphasize science as a great force for enlightenment and contrast it sharply with fanatical religious fundamentalism. Then stress that intelligent design is essentially a religious and political movement. Generously use the "C-word" to confuse intelligent design with creationism, and then be sure to liken creationism to astrology, belief in a flat earth, and holocaust denial.
2. **Argue for the superfluity of design.** This action point is also getting increasingly difficult to implement simply on the basis of empirical evidence, but by artificially defining science as an enterprise limited solely to material mechanisms, one conveniently eliminates design from scientific discussion. Thus any gap in our knowledge of how material mechanisms brought about some biological system does not reflect an absence of material mechanisms in nature to produce the system or a requirement for design to account for the system, but only a gap in our knowledge readily filled by carrying on as we have been carrying on.
3. **Play the suboptimality card.** For most people the designer is a benevolent, wise God. This allows for the exploitation of cognitive dissonance by pointing to cases of apparent incompetent or wicked design in nature. I believe intelligent design has good answers to this objection, but the problem of evil is wonderfully adept at clouding intellects. This is one place where skepticism does well exploiting emotional responses.
4. **Achieve a scientific breakthrough.** Provide detailed testable models of how irreducibly complex biochemical systems like the bacterial flagellum could have emerged by material mechanisms. I don't give this much hope, but if you could pull this off, intelligent design would have a lot of backpedaling to do.
5. [And finally] **Paint a more appealing world picture.** Skepticism is at heart an austere enterprise. It works by negation. It makes a profession of shooting things down. This doesn't set well with a public that delights in novel possibilities. In his *Pensées*, Blaise Pascal wrote, "People almost invariably arrive at their beliefs not on the basis of proof but on the basis of what they find attractive." Pascal was not

talking about people merely believing what they want to believe, as in wish-fulfillment. Rather, he was talking about people being swept away by attractive ideas that capture their heart and imagination. Poll after poll indicates that for most people evolution does not provide a compelling vision of life and the world. Providing such a vision is in my view skepticism's overriding task if it is to unseat intelligent design. Good luck.