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Why Do Academics Not Seriously Consider Intelligent Design?

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Earlier this year I had the pleasure of participating in a three-hour debate in Krakow sponsored by the En Arche Foundation on the question “Intelligent Design in Nature — Illusion or Reality?”. Mathematical biologist Richard Sternberg joined me in defending the reality of design against philosopher of biology Michael Ruse and paleontologist Malgorzata Moczydlowska-Vidal. I very much appreciated the cordiality and good humor of our debate opponents. However, in the aftermath of the event I have been left wondering about the underlying reasons why many scholars effectively refuse to consider the idea of detectable design in nature. In this letter I would like to lay out some of my preliminary thoughts on the matter.

Cardinal Newman’s Aphorism Upended

First, let me summarize my own background and views. I am a life-long Roman Catholic, educated through twelfth grade in parochial schools. Although belief in God was, of course, taken for granted in my schooling, little was said about any supposed conflict between science and religion, including on the topic of evolution. Instead, in retrospect, I see the general attitude toward such matters paralleled that found in a scholarly 20,000-word article on Evolution written by two Je-

suit biologists for the 1909 edition of the **Catholic Encyclopedia**. The gist of the article was that:

> We must carefully distinguish between the different meanings of the words *theory of evolution* in order to give a clear and correct answer to this question. We must distinguish (1) between the theory of evolution as a scientific hypothesis and as a philosophical speculation; (2) between the theory of evolution as based on theistic principles and as based on a materialistic and atheistic foundation; (3) between the theory of evolution and Darwinism; (4) between the theory of evolution as applied to the vegetable and animal kingdoms and as applied to man. [1]

By the time all those scholarly distinctions were filtered down the generations, past my parochial school teachers, and into my teenaged skull, the take-home message had been simplified to a shrug: God created the universe and if He wanted to make life by the operation of natural laws, who were we to tell Him otherwise? That sounded perfectly fine to my younger self — I paid little attention to the topic. In practice, it amounted to a theistic evolutionary view probably not much different from that currently held by such Christian scientists as the geneticist Francis Collins and the theoretical physicist Stephen Barr. [2] The attitude had previously been captured in a pithy expression (quoted in the debate by Professor Ruse) by Cardinal (now a canonized Saint) John Henry Newman — a contemporary of Darwin: "I believe in design because I believe in God; not in God because I see design". [3]

The astounding progress of our scientific understanding of life in the past three-quarters of a century, however, has upended that aphorism. As a Catholic, I don't believe in God because I see design any more than Newman did. Like him, I have always had plenty of other reasons to do so. Rather, as a biochemist I now recognize deliberate design in nature on empirical, scientific grounds — because the coded information at life's foundation bespeaks it and the construction of elegant cellular machinery requires it.

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[1] Erich Wasman, "Catholics and Evolution", in: **The Catholic Encyclopedia**, Vol. 5, Robert Appleton Company, New York 1909, p. 654 [654–670].

[2] See Francis S. Collins, **The Language of God: A Scientist Presents Evidence for Belief**, Free Press, New York 2006; Stephen M. Barr, **Modern Physics and Ancient Faith**, University of Notre Dame Press, Notre Dame 2003.

[3] Quoted in: Noel Keith Roberts, "Newman on the Argument from Design", *New Blackfriars* 2007, Vol. 88, No. 1013, pp. 56–66, https://doi.org/10.1111/j.1741-2005.2006.00133.x.

The Reality of Molecular Machines

Too few academics, I think, have fully absorbed the fact that the very foundation of life is run by *machines* — enormously sophisticated machines made of molecules. (Indeed, in the debate Professor Moczydlowska-Vidal herself objected to my use of the term *molecular machines*, even though a quick search of the PubMed database shows tens of thousands of papers in the professional literature that contain it). The famed bacterial-flagellum outboard-motor and the illustrious ATP-synthase turbine-engine are only the tip of the proverbial iceberg. Other magnificent cellular machines include: nuclear-pore complexes, which regulate traffic flowing between nucleus and cytoplasm; condensins, which bind and progressively extrude DNA to prevent it from tying itself into knots; kinesin motors (that resemble Star-Wars 'walkers'), which pull cargo along molecular highways toward specific cellular destinations designated by molecular zip codes; and much, much more.

And the marvels keep on coming. Just in the past week I've seen one brand-new paper that "perform[s] a comprehensive screen for protein interactions" involved in the essential function of DNA damage repair. (Such studies were impossible to do only a few decades ago). The work "reveal[s] a hierarchical organization of six hundred and five proteins into one hundred and nine assemblies". [4] A second paper published this week describes a single-celled symbiont of termites in which the anterior third of the cell rotates reversibly while the posterior two-thirds remains stationary. The authors remark, "The function of this rotatory movement, the cellular mechanisms enabling it, and the way the cell deals with the consequent cell membrane shear, are all unknown. 'Rotating wheel' structures are famously rare in biology, with prokaryotic flagella being the main exception; these mysterious spinning cells found only among Parabasalia are another, far less understood, example". [5] The more science progresses, the much more intri-

[4] Anton Kratz, Minkyu Kim, Marcus R. Kelly, Fan Zheng, Christopher A. Koczor, Jianfeng Li, Keiichiro Ono, Yue Qin, Christopher Churas, Jing Chen, Rudolf T. Pillich, Jisoo Park, Maya Modak, Rachel Collier, and Kate Licon, "A Multi-Scale Map of Protein Assemblies in the DNA Damage Response", *Cell Systems* 2023, Vol. 14, No. 6, pp. 447–463, https://doi.org/10.1016/j.cels.2023.04.007.

[5] Elisabeth Hehenberger, Vittorio Boscaro, Erick R. James, Yoshihisa Hirakawa, Morelia Trznadel, Mahara Mtawali, Rebecca Fiorito, Javier del Campo, Anna Karnkowska, Martin Kolisko, Nicholas A. T. Irwin, Varsha Mathur, Rudolf H. Scheffrahn, and Patrick J. Keeling, "New Parabasalia Symbionts *Snyderella* spp. and *Daimonympha* gen. nov. from South American *Rugitermes* Termites and the Parallel Evolu-

cate we discover the foundation of life to be.

Darwinian Bluster

Darwinian attempts to account for such marvels are truly pitiful. In 2008, the well-known bioinformatician and member of the National Academy of Sciences Eugene Koonin effused over an article ("brilliant" [...] "genuinely important work") proposing a then-new concept that hoped to explain the *very simplest* example of a cooperative molecular feature in proteins (called a 'disulfide bond', which can be likened to a hook-and-eye latch). [6] Fifteen years later the idea is moribund. Imagine a braggart who claimed to be able to explain how an advanced outboard motor for a speedboat that was stored in his shed could develop without intelligence but, when challenged, couldn't manage to account even for the hook-and-eye latch holding shut the shed's door. Yet such is Darwinism.

In his remarks Professor Ruse cited a decades-old, putative rejoinder to irreducible complexity (an indicator of design) that envisions a scaffold permitting an otherwise-unbuildable stone-arch bridge to be constructed gradually. Not only did he fail to cite any biological molecular machine the notion supposedly applied to, he overlooked the fact that scaffolding anticipates the final structure, so that it actually would *increase* the need for purposeful design. In reply to my standard litany of molecular machinery, Professor Moczydlowska-Vidal cited a polemical book chapter from 2004 by biologist Kenneth Miller arguing that a flagellum is not irreducibly complex because some of its many components can also be found in another structure, the Type III Secretory System. [7] In doing so, she overlooked the facts that: 1) I had rebutted Miller's tendentious argument in my own chapter in

tion of A Cell with a Rotating »Head«", *Journal of Eukaryotic Microbiology* 2023, A e12987, https://doi.org/10.1111/jeu.12987.

[6] See Dion J. Whitehead, Claus O. Wilke, David Vernazobres, and Erich Bornberg-Baue, "The Look-Ahead Effect of Phenotypic Mutations", *Biol Direct* 2008, Vol. 3, No. 18, https://doi.org/10.1186/1745-6150-3-18.

[7] See Kenneth R. Miller, "The Flagellum Unspun: The Collapse of »Irreducible Complexity«", in: Michael Ruse and William Dembski (eds.), **Debating Design: From Darwin to DNA**, Cambridge University Press, New York 2004, pp. 81–97.

the *very same book*; [8] 2) Miller's research area is not the flagellum and he has published no research papers on it; 3) despite twenty-five years of intense antipathy by much of the scientific community toward intelligent design, to this day no non-polemical papers have appeared in science journals explaining in testable detail how such a thing as a flagellum could evolve in the absence of guidance. Before spinning grandiose-but-fatally-vague tales about sophisticated molecular machinery, perhaps Miller and like-minded colleagues should start small by helping Eugene Koonin try to account for disulfide bonds.

The Problem of Evil

During his remarks arguing against discernible design, Professor Ruse emphasized the problem of evil. Philosophers and theologians have been discussing that dilemma at least since the writing of the Book of Job 2500 years ago. Briefly, in its classical form it asks, if God is good, why does He permit horrendous evils to occur to innocent people? If God is good, how can we account for Stalin? Hitler? Mao? Why didn't God stop them?

Yet the argument offered by Ruse wasn't the classical one. Instead, it might be paraphrased as the following: If there is design in life, as ID proponents such as myself say, then God must have taken an active role in shaping it. In turn, that means He could have prevented pain and evil in the world but apparently chose not to. In Professor Ruse's (but not Job's) thinking, that choice would damage God's reputation. On the other hand, if God set up some automated natural process to make life (such as Darwinian evolution), that would supposedly insulate Him from blame for natural evil. Professor Ruse, an atheist, seemed to be offering friendly advice to theists that they should adopt the latter course, to save themselves some distress. Besides Ruse, the same sort of argument has also been made by other Darwinists who have expressed sympathy for religious people, including University of California evolutionary biologist John Avise and the late Francisco Ayala, also an eminent evolutionary biologist and former Domini priest. [9]

[8] See Michael J. Behe, "Irreducible Complexity: Obstacle to Darwinian Evolution", in: Michael Ruse and William Dembski (eds.), **Debating Design: From Darwin to DNA**, Cambridge University Press, New York 2004, pp. 352–370.

The first thing to say about such an argument is that it fails even on its own terms. A person who is suffering from some horrendous, evolved evil could just as easily ask why God set up such a terrible process that leads to torment, instead of directly making a better world. Thus the question of why God didn't do a better job would remain; the problem of evil is not even deflected by the proffered strategy. The second problem with the friendly advice is that it's not a tenable response to the debate question. A scholar's first responsibility is to the truth, not to the feelings of a religious group. Maybe God is not good after all, or perhaps we don't see the big picture (which was the lesson of the Book of Job). Yet in the face of the discovery of sophisticated molecular machinery and the hapless Darwinian response to it, intelligent design is at the very least a compelling prima facie hypothesis. The "Darwin-saves-God's-reputation" argument doesn't even try to address it.

The Rule of Law

During her remarks Professor Moczydlowska-Vidal cited facts that, when pieced together, suggest a more interesting, if ultimately unsuccessful, line of attack against the argument for intelligent design in biology. She discussed the succession of life at length, beginning with the fact that atoms can join to form the molecules of life by following the laws of chemistry. She did not mention that, despite 70 years of research, no scientist has been able to explain how life could have originated by an undirected process. Moczydlowska-Vidal then talked about how there is evidence for the existence of single-celled prokaryotic life from 3.8 billion years ago. She did not mention that no scientist knows how the machinery of those cells (including the famous bacterial flagellum I cited in my own talk) could have evolved by a Darwinian process. Professor Moczydlowska-Vidal continued the historical timeline to our own human species and remarked on our ability to be self-aware, to learn, and to reason. (Puzzlingly, she then said that "on a global scale, we aren't very special," which seems to me to contradict her previous observations). Needless to say, no scientist has a clue how a mindless process

[9] See John C. Avise, **Inside the Human Genome: A Case for Non-Intelligent Design**, Oxford University Press, Oxford — New York 2007; Francisco J. Ayala, **Darwin's Gift to Science and Religion**, Joseph Henry Press, Washington 2007.

such as Darwinian evolution could produce those distinctive features of our species.

I think Professor Moczydlowska-Vidal's intended point was that the very progression of life has its own force, which draws its strength from her observation that Darwin's theory is *law-bound*, that his theory depends only on the laws of physics, chemistry, and biology, and nothing else. The overarching lesson she wanted to convey, it seemed to me, is that, despite a woeful lack of explanations for many particulars, we should nonetheless presume life developed completely by natural laws. We should presume so based solely on: 1) the existence of natural laws; 2) the progression of life; and 3) bits of evidential support for the existence of Darwin's mechanism of random mutation and natural selection in simple circumstances.

It is an interesting but unpersuasive line of argument. The building of a house also appears to be a progression when viewed in snapshots from a distance: first excavation, next the foundation, subsequently the frame, and so on. The mere fact of a progression of events says nothing about whether intelligence directed it or not. Furthermore — when we look closely and continuously — over time we see houses deteriorating without intelligent action. We see the same thing in long-term laboratory evolution experiments with bacteria, where the most common outcome by far is for cells to adapt by degrading or breaking preexisting genes. Houses obey the laws of physics and chemistry: supporting structures are held in place by known forces, paint adheres to surfaces by known chemical reactions, and so on. Nevertheless, we of course need more than just the laws of chemistry and physics to explain houses. ID proponents claim that more than laws are also needed to explain life.

Finally, prioritizing an allegiance to abstract laws of nature over the powerful empirical evidence of molecular machinery and coded information is a questionable stance, not least because the laws of nature tell us so little about the world. [10] For example, Newton's laws of motion are great for predicting the path of a cannon ball but are useless for predicting the detailed weather in Krakow a month from today. Basic laws are fine for very simple, isolated systems, but quickly lose their predictive power as the number of interacting entities increases. (And, of course, the history of life has had a huge number of interacting entities at many

[10] See Nancy Cartwright, **How the Laws of Physics Lie**, Oxford University Press, Oxford 1983.

levels). Added to all these problems is that no one currently knows what 'laws' even are at the very smallest levels of nature, in the quantum world. For example, a recent essay in *Nature* on the growing paradoxes of quantum double-slit experiments concludes that all of our continuing research "has left us scratching our heads to this day". [11] In 1927 the mathematical evolutionary biologist J. B. S. Haldane wrote, "Now, my own suspicion is that the universe is not only queerer than we suppose, but queerer than we *can* suppose". [12] The purposeful intelligent design of life is certainly queerer than many of Haldane's intellectual heirs seem to be able to suppose — exactly what he predicted. Why then do they so quickly discount it?

The Bottom Line

Why are so many academics seemingly allergic to even considering purposeful design in nature? Unfortunately, I think the philosopher Thomas Nagel pinpointed the most common reason more than 25 years ago in his book *The Last Word* — the "fear of religion", which:

> [I]s responsible for much of the scientism and reductionism of our time. One of the tendencies [such fear] supports is the ludicrous overuse of evolutionary biology to explain everything about life, including everything about the human mind. Darwin enabled modern secular culture to heave a great collective sigh of relief, by apparently providing a way to eliminate purpose, meaning, and design as fundamental features of the world. [13]

The story goes that the twentieth-century philosopher and atheist Bertrand Russell was asked what he would say if the Deity confronted him after death. His reply: "I'd say, Not enough evidence, God, not enough evidence!". [14] In our day

[11] Anil Ananthaswamy, "Particle, Wave, Both or Neither? The Experiment that Challenges All We Know About Reality", *Nature* 2023, Vol. 618, No. 7965, pp. 454–456, https://doi.org/10.1038/d41586-023-01938-6.

[12] John Burdon Sanderson Haldane, **Possible Worlds, and Other Papers**, Harper & Brothers, New York — London 1928, p. 286.

[13] Thomas Nagel, **The Last Word**, Oxford University Press, New York 1997, pp. 160–161.

[14] As quoted in Wesley C. Salmon, "Religion and Science: A New Look at Hume's »Dialogues«", *Philosophical Studies: An International Journal for Philosophy in the Analytic Tradition* 1978, Vol. 33, No. 2, pp. 143–176, https://tiny.pl/c7x6n [22.06.2023].

Russell's demand has been met. Modern science has discovered coded genetic information, fantastic molecular machines, and other marvels at the very foundation of life. Yet, despite the rare scholar such as Antony Flew who changes their mind based on such evidence, [15] it seems to me that most are like Nagel himself:

> I speak from experience, being strongly subject to this fear [of religion] myself: I want atheism to be true and am made uneasy by the fact that some of the most intelligent and well-informed people I know are religious believers. It isn't just that I don't believe in God and, naturally, hope that I'm right in my belief. It's that I hope there is no God! I don't want there to be a God; I don't want the universe to be like that. [16]

Because of a fear of where it will lead, "modern secular culture" (which includes very large chunks of academia) studiously averts its eyes from overwhelming evidence of purposeful design.

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