

[Signature in the Cell](#)

By Stephen Meyer (New York, NY: Harper Collins, 2009), 624 pp., (kindle edition).

Having spent most of my career working in applied science (electrical engineering, software engineering), it was the recognition of control-systems in nature (e.g., the flight of the hummingbird, dragonfly, and butterfly) and the design required to make them viable which, in part, led me to eventually reject the Darwinism in which I was inculcated from my youth and to seek a more viable explanation for our origin. This, in turn, led to a reexamination of the Bible – which I had thoroughly rejected in my earlier years – and my eventual arrival as a convinced creationist and born-again Christian at the age of 34.

Since the question of origins figured so importantly in my unexpected conversion, upon initially becoming a Christian I had a fairly extensive library on the related subjects. However, as I grew in my time as a Christian, I came to understand my primary calling to be that of understanding and teaching the Bible itself. Thus, over time, my focus shifted away from science/apologetics and increasingly toward the Scriptures.

Yet, over the years, I have maintained a healthy interest in the subject of origins and apologetic evidence that the world around us reveals compelling evidence for a Master Designer (Rom. 1:20), rather than being the unintentional achievement of chance over vast ages of time. And so it was with great interest that I purchased the kindle edition of Stephen Meyer's *Signature in the Cell* at the recommendation of a colleague (Dr. [Paul Henebury](#)).

I was not disappointed! It seems to me (and many others) that this book is destined to become a classic of our time. Not only is it very readable, but manages to take some fairly complex aspects of microbiology and genetics and make them (mostly) accessible to anyone who would care to spend the time to find out why the “open and shut case” for Darwinism, despite the media and educational system's best efforts to convince us, remains anything but “a fact.” (To be fair, Meyer's treatment concerns information needed for the origin of life, not so much the possibility of subsequent descent with modification which is the domain Darwin's theory. Of course there is still the question as to whether such modifications *produce* or *damage* information – creationists asserting the latter. But this is not treated by Meyer as he has more than enough on his plate. If he can make the case that life cannot realistically arise by chance, then the case for intelligence as the best explanation stands.)

At issue, is *information*. Two exciting technologically-driven developments are happening in tandem which have the potential to topple the reigning paradigm of Darwinism: 1) biotechnology has uncovered the stunningly complex world within the “simple cell”; 2) our information age is bringing an increasing appreciation among the general populace concerning the nature of information and how it is produced.

Concerning this second aspect, Meyer observes:

We live in a technological culture familiar with the utility of information. We buy information; we sell it; and we send it down wires. We devise machines to store and retrieve it. We pay programmers and writers to create it. And we

enact laws to protect the “intellectual property” of those who do. Our actions show that we not only value information, but that we regard it as a real entity, on par with matter and energy. [Par. 283]¹

The wonderful and mysterious thing about *information* is that it goes beyond the strictly material realm – pushing into regions which modern “science education” has often sought to rule as “off-limits” from rational investigation – seeking rulings in the court systems to prohibit the use of information as evidence as if it were purely the realm of fantasies and fairies. Far from such flights of fancy, it is this mysterious *information* which is at the heart of the computer revolution itself:

A blank magnetic tape, for example, weighs just as much as one “loaded” with new software—or with the entire sequence of the human genome. Though these tapes differ in information content (and value), they do not do so because of differences in their material composition or mass. [Par. 310]

Day-to-day, our culture completely relies on this mysterious immaterial entity:

When a personal assistant in New York types a dictation and then prints and sends the result via fax to Los Angeles, some thing will arrive in L.A. But that thing—the paper coming out of the fax machine—did not originate in New York. Only the information on the paper came from New York. No single physical substance—not the air that carried the boss’s words to the dictaphone, or the recording tape in the tiny machine, or the paper that entered the fax in New York, or the ink on the paper coming out of the fax in Los Angeles—traveled all the way from sender to receiver. Yet something did. [Par. 303]

It turns out that one of the central points of the book concerns the question of where information originates? Meyer makes the case that the only known source of specified information is *intelligence*. In fact, the book becomes a guided tour of sorts where the reader accompanies Meyer turning over various popular stones (theories) to find whether the sort of information evident within biological systems can truly be said to be found under one of them. Of course, those with a Biblical conviction know that there *is* One Stone which contains the explanation for the origin of specified complexity, but this stone, as we know, is one which cannot be admitted into the classroom because it involves the realm of the supernatural which the hobbled “what we see is all there is” science of our day has ruled as outside of the realm of rationality and therefore as inadmissible for consideration. And so “common sense” has been ruled “nonsense”:

Our commonsense reasoning might lead us to conclude that the information necessary to the first life, like the information in human technology or literature, arose from a designing intelligence. But modern evolutionary biology rejects this idea. [Par. 348]

¹ The kindle edition lacks page numbers. All locations refer to paragraph numbers.

And so we have this perplexing situation where the only known source of information is intelligence (which, interestingly, has no *meaning* except as it becomes evident to other intelligent agents), but the study of its origin and the obvious implications – intelligent design – is deemed as “unintelligent” and a simple repackaging of “creationism under the covers.” (Meyer makes a sound and important case that intelligent design is not creationism, nor can or should it be.) Although the implications of information found in biology and living systems are off-limits in the classroom, the man-in-the-street is well equipped to recognize such implications in other areas more visible to the senses:

Visitors to Mt. Rushmore in South Dakota infer the past action of intelligent design upon seeing some unusual shapes etched in the rock face. Why? The shapes on the hillside are certainly unusual and irregularly shaped, and thus, in this context, improbable. But beyond that, observers recognize a pattern in the shapes that they know from an independent realm of experience, from seeing the faces of ex-presidents in photographs or paintings. The patterns on the mountain match patterns the observers know from elsewhere. [Par. 5821]

For those of us with experience in the information sciences this inability to admit evidence of information pointing to intelligence into the classroom borders on lunacy. How can it be off-limits to talk about the implications of information in living systems in the classroom when the larger part of the technological revolution is entirely dependent on advances in information *produced by the benefits of science and engineering through agents of rational intelligence*? No, we are urged, the rational way to explain all this complexity is *chance* (which nobody has ever seen clean a garage!). Even worse, this is the best we hold out for the hope of a meaningful life to our students! Be motivated! Have a fulfilling and challenging life! Go out and change the world! But just remember: in the end, you are nothing more than random chemistry which slithered out of a pool of slime.

Meyer draws upon the work of mathematician William Dembski in several chapters when discussing the type of information which Meyer and other intelligent design advocates are on about. This is very helpful information because it distinguishes between chance events which are sure to happen versus those which surpass available probabilistic resources.

Dembski illustrated this by asking me to imagine flipping a coin 100 times and then writing down the exact sequence of heads and tails that turned up. He pointed out that if I was bored enough to do this, I would actually participate in an incredibly unlikely event. The precise sequence that occurred would have a probability of 1 chance in 2100 (or approximately 1 in 1030). Yet the improbability of this event did not mean that something other than chance was responsible. After all, some sequence of that improbability had to happen. Why not this one? [Par. 2950] . . . the occurrence of an improbable event alone does not justify eliminating the chance hypothesis. [Par. 3076]

The fact that we view the particular sequence of coin tosses that was generated as being

insignificant is another indicator that intelligence was not involved. As Meyer makes plain in his discussion, we humans have a built-in baloney detector of sorts which we use everyday to distinguish between events which are realistically produced by chance from those which we deem to be “crooked” or “rigged.” We deem chance outcomes to be crooked or rigged (unfairly influenced toward a decided outcome) when we notice patterns or specified (pre-determined) results:

How improbable does an event have to be to justify the elimination of a chance hypothesis? If we begin to detect a pattern in an improbable sequence of events, at what point should our doubts about the chance hypothesis lead us to reject it as untenable or unreasonable? As a blackjack player repeatedly wins against the house, or a ball repeatedly falls in the same hole, or as a die repeatedly comes up on the same side, or as we observe an event that implies that great odds were overcome in the past—at what point do we finally conclude that enough is enough, that something besides chance must be in play? How improbable is too improbable? The answer is, “That depends.” It depends on the improbability of the event in question. But it also depends upon how many opportunities there are to generate the event. [Par. 3086]

This is a key theme of the book: the question is not whether chance can produce results, but *what kind* of results chance can realistically produce given the amount of time and the specificity of the required outcome. Chance can and does produce results — indeed *must* produce a result whenever it operates. The question is whether the result squares with the odds required based on the time, resources, and intentional specificity (designed complexity or purpose) of the result. This specified information is the polar opposite of random noise — which every communication engineer well knows. And it is precisely the difference between noise and specified patterns, in a communication signal for example, which encodes information which finds its origin (and any interpretive meaning) in intelligence.

But this is saying nothing more than the SETI (the *Search for Extra-Terrestrial Intelligence*) project takes at face value: the reception of an encoded signal of specified complexity from deep space would rightly be deemed *evidence of intelligence*. So here we have a group of critical thinking scientists searching the skies on a project (often fawned over by the media and intelligentsia) seeking evidence and using methodology which has been ruled as “non-science” by our courts and deemed inadmissible to your average school classroom. Go figure! No wonder we are producing confused students these days?!

Along the way, Meyer discusses the probability associated with generating a modest protein (which, by the way, is just a small part of what would be needed for life):

The odds of getting even one functional protein of modest length (150 amino acids) by chance from a prebiotic soup is no better than 1 chance in 10^{164} . [Par. 3467]

Another way to say that is the probability of finding a functional protein by

chance alone is a trillion, trillion, trillion, trillion, trillion, trillion, trillion times smaller than the odds of finding a single specified particle among all the particles in the universe. [Par. 3477]

He also produces a calculation by Demski, which generously allows a long-age universe with every observable particle dedicated to another chance attempt each second to show that the odds related to the simple protein far exceed the probabilistic resources of the universe. This rather sobering reality doesn't stop some cosmologists who retreat to mathematical theory in an attempt to envision an "inflationary cosmology" allowing for an essentially limitless number of parallel universes in a vain attempt to bolster the probabilistic resources. Never mind that much of the theory involved has more in common with a belief in pink elephants and Alice in Wonderland than reality.

Consider the "Boltzmann brain" phenomenon, for example, over which quantum cosmologists have been greatly exercised. Within inflationary cosmology, it is theoretically possible for a fully functioning human brain to pop spontaneously into existence, due to thermal fluctuations in the quantum vacuum, and then disappear again. Such an entity has been called a "Boltzmann brain." Under standard conditions for bubble-universe generation in inflationary cosmology, Boltzmann brains would be expected to arise as often, or more often, than normal occurrences in our universe. Indeed, calculations based upon some inflationary cosmological models lead to a situation in which these free-floating Boltzmann brains infinitely outnumber normal brains in people like us. [Par. 8511]

Because of Meyer's background in the history of science, some of the most interesting parts of the book discuss developments and approaches to science, including events leading to the famous discovery of the double-helix of DNA.

Meyer is no slouch when it comes to biological systems, following a path through numerous alternative theories which have been put forth as the odds have continued to grow against a chance explanation for the origin of living systems. For example, one such theory which is presently thought to offer relief in the beleaguered quest to explain life without an intelligence cause (the "RNA world") is shown to be of little help in truly addressing issues of the origin of the needed information.

An especially helpful aspect of the book is a brief analysis of algorithmic examples and computer programs which are put forth in an attempt to show that complex information can be produced without intelligence. In every case, the experiment itself is shown to be tainted by the introduction of the intelligence of the experimenters themselves, usually in subtle and unintentional ways which are not valid. It turns out to be a bit like the Heisenberg uncertainty principle in that the study of the *unintelligent* origin of information by experiments set up by *intelligent* agents is fraught with the subtle coupling of intelligence into the experimental system or procedure. As a software developer, this is something I'd been convinced of when reading extravagant claims of computer-based "proofs of evolution" even before reading Meyer.

...the very fact that these experiments required so much intervention seemed significant. By involving “programming” and “engineering” in simulations of the origin of life, these new approaches had introduced an elephant into the room that no one wanted to talk about, especially not in the methods sections of scientific papers. [Par. 5303]

Meyer exposes similar experimental corruption in relation to “prebiotic soup” origin of life experiments where conditions are carefully controlled by the intelligence of the experimenters who are seeking to show how the results could all come about by chance.

Most origin-of-life researchers recognized that, even if there had been a favorable prebiotic soup, many destructive chemical processes would have necessarily been at work at the same time. Simulation experiments of the type performed by Stanley Miller had repeatedly demonstrated this. They have invariably produced nonbiological substances in addition to biological building blocks such as amino acids. Without intelligent intervention, these other substances will react readily with biologically relevant building blocks to form biologically irrelevant compounds—chemically insoluble sludge. To prevent this from happening and to move the simulation of chemical evolution along a biologically promising trajectory, experimenters often remove those chemicals that degrade or transform amino acids into nonbiologically relevant compounds. They also must artificially manipulate the initial conditions in their experiments. For example, rather than using both short-and long-wavelength ultraviolet light, which would have been present in any realistic early atmosphere, they use only short-wavelength UV. Why? The presence of the long-wavelength UV light quickly degrades amino acids. [Par. 3712]

Given the breadth and depth of the book, it is nearly impossible to touch on all that is valuable in the text. Suffice it to say that the book is a *tour de force* treatment of the secular (but not Biblical) puzzle of the origin of life and related topics.

Time and time again, Meyer returns to the same quandary: intelligent design is admissible as applied in various venues of historical investigation (involving abductive reasoning), but for *some reason* it is ruled out in relation to biological analysis of how life came to be. One can sense his frustration at this unfairness in numerous passages. For example:

... anthropologists who discovered the ancient cave paintings in Lascaux, France, knew of only one cause capable of producing representational art. Consequently, they inferred the past activity and presence of intelligent agents. Moreover, they could make this inference confidently without any other evidence that intelligent agents had been present, because the presence of the paintings alone established the probable presence of the only known type of cause—intelligence—of such a thing. [Par. 5421]

in hypothetical and real-world cases, the inference to intelligent design as the

best explanation for the origin of specified information is straightforward and unproblematic—except, for some, when considering the origin of life. [Par. 6545]

As important and needed as the intelligent design movement is, it can only go so far. It can point to the evidence for an active intelligence. It can even infer some of the attributes of that intelligence (e.g., the more sophisticated the information, its encoding, and its associated storage and transmission system, the higher the intelligence). But it can never escape beyond the “glass ceiling” of nature to the intelligence itself.

As Christians, we know that this is where natural revelation reaches its limits and special revelation (the Bible) enter the picture. And the Bible makes plain that although God speaks through both (Ps. 19), where man has only natural revelation at his disposal, he is considered to be lost and in great darkness (Isa. 9:2; Luke 1:79). Thus, intelligent design can point to an intelligence, but cannot answer whether that intelligence be a Designer with a capital “D.” Nor can it convey His self-revelation to His Creatures.

This is the proper and admitted limit of the intelligent design movement. Without special revelation, it is unable to provide answers which only God’s self-revelation can provide. Especially as to why it is that men admit information as evidence of intelligence in many venues of historical investigation *except* those of a cosmological nature with associated teleological implications? For these answers, we must turn to special revelation:

John 3:19-20 And this is the condemnation, that the light has come into the world, and men loved darkness rather than light, because their deeds were evil. For everyone practicing evil hates the light and does not come to the light, lest his deeds should be exposed.

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