

# DNA, Information, and the Signature in the Cell

Where did we come from? Heather Zeiger uses Stephen Meyer's book *Signature in the Cell* to *logically show that the best answer is an intelligent cause—God—rather than natural causes.*

## Where Did We Come From?

Where did we come from? A simple question, but not an easy answer. Darwin addressed this question in his book, *On the Origin of Species*. Although he never really answered how the universal common ancestor first came to life, he implied that it was from natural causes. In this article, we are going to look at Darwin's method of deducing occurrences in the past based on observations we see today. This is now referred to as the *historical* or *origins science* method. We will find that purely naturalistic causes fall short of explaining what we know about DNA, but intelligent design seems to be a promising alternative. Then we will look at scripture and see how Christians can use these evidences for design to talk about who that designer is. We will be using Stephen Meyer's new book, *Signature in the Cell*, to guide us on the science and method of approaching this question.

Charles Darwin's book, *On the Origin of Species* discusses his theory on how natural selection acts on living things so that the fittest organisms for a particular environment survive, and how this process eventually leads to novel species and body plans. Implied in his work is the notion that all living things came from nature and from natural causes. So his presupposition is that life must have first come from impersonal things like matter and energy. Because of this, origin-of-life scientists have been trying for years to demonstrate how life may have come from non-life.

Let's try to figure out how a cell could form from purely naturalistic processes. Better yet, since we now know that natural selection acts on random mutations within the genome, let's focus in on DNA, the instruction booklet for the cell. Without DNA, cells would not function.

DNA is part of a complex information-processing systems<sup>{1}</sup> DNA is a long, helical structure found inside the nucleus and mitochondria of the cell. It is made of a four-molecule alphabet arranged in a very specific order. This sequence is like an instruction book telling the cell what parts to use to build a protein. But this instruction book needs to be decoded with other proteins. The difficult thing is that proteins are needed to make more DNA, but DNA is needed to make proteins. And the cell cannot function without proteins. This means that the first DNA molecule must have been made differently than how it is made today.

DNA is a very complex information processing system. In fact, Bill Gates has compared it to a computer program but far, far more advanced than any software ever created.<sup>{2}</sup> DNA is more than just an improbable sequence of bases; it is functional. It tells the cells what to do. So the question we really need to answer is, how can this kind of information arise in the first place?

## Origins and Operations Science

We are investigating what science can tell us about the origin of life. Did we just come out of a chemical soup, or was it something else? First, we need to answer this question: How did DNA, the body's instruction book, first get here? In order to answer the question, we need to decide what method to use to investigate this question. Since we are looking at the science, we should use the scientific method. However, we need to make a distinction between approaching something that is a re-occurring, testable phenomenon, and a singular event in the

past.

As a scientist, I usually work in the area of *operations science*. This is the type of science we learn in school. You start with a hypothesis, then you conduct an experiment to test your hypothesis. Repeat your experiment several times, collect data, and make conclusions about your hypothesis. Operations science deals with regular, repeatable things that can usually be described by mathematical formulas. Oftentimes, operations science is looking at some kind of naturally occurring process.

But there is another type of science that forensics experts and archeologists use. It is called origins science. Origins science determines what caused a singular event in the past. The role of origins science is to first determine if something was caused by chance, natural laws, or intelligence. For example, one could find a rock formation that looks very similar to a human head. Was this formation caused by chance and natural laws, such as wind and rain wearing away the rock? Or was it caused by intelligence? Did someone carve the rock to look this way?

Origins science operates under a different set of rules than operations science because the event in question has already happened, and it is not a reoccurring, observable phenomenon. The best that we can do is look at clues to give us a reasonable guess as to what might have happened. In *Signature in the Cell*, Meyer uses origins science to determine if DNA is a result of chance, natural laws, or intelligence:

*Thaxton and his colleagues argued that inferring an intelligent cause was legitimate in origins science, because such sciences deal with singular events, and the actions of intelligent agents are usually unique occurrences. On the other hand, they argued that it was not legitimate to invoke intelligent causes in operations science, because such sciences only deal with regular and repeating phenomena.*

*Intelligent agents don't act in rigidly regular or lawlike ways, and therefore, cannot be described mathematically by laws of nature.*[\[3\]](#)

DNA replication happens all of the time, but it requires proteins. But proteins are made by instructions from DNA. So the first DNA molecule must have been made in a special, atypical way, meaning it qualifies as origins science. Origins science allows for singular acts of intelligence to explain certain phenomena.

This means we need to investigate, using origins science, how the first DNA molecule with its information-carrying capacity was produced.

## **What Are the Possibilities?**

DNA is the code for life. If we determine where it came from, then we are one step closer to determining the origin of life. Let's look at the typical origin of life theories posed by scientists as our first step in our origins science method, and see where theories are lacking or where they are helpful. Two things these theories all have in common is that they presume no designer, but only natural causes, and none of them can explain the origin of information.

The first option is that DNA might have arisen by chance. When scientists talk about chance, they are not saying that some entity called Chance did something. They mean random chemical shuffling, and out of that came DNA. But it's not good enough to explain how random chemicals came together. Think of scrabble pieces. To say that DNA came about by chance would be similar to saying that someone shook a bag of scrabble pieces and threw them on the floor and it spelled out a sentence. And this would not be just any sentence, but step-by-step instructions on how to build a cellular machine. Chance is not a good explanation for the origin of DNA, because the

probability of getting something as specified and complex as DNA is well beyond the accepted probability of zero.

The other option is DNA might have come about because of necessity or natural law. Maybe there is some chemical or natural reason that forced the DNA molecules to form. Two examples of this type of origin of life theory are *self-organization* and *biochemical predestination*. The idea behind both of these is that the molecular alphabet in DNA arranged itself because of chemical properties or environmental factors. Unfortunately, scientists have found that the molecules in DNA do not chemically interact with each other because they are stuck to a phosphate backbone, not to each other.[\[4\]](#) On top of that, there isn't even a chemical attraction between these DNA sequences and the protein parts they code for (known as a *codon*). Since there is not a self-organizing motivation for this, and there is not an environmental factor that would favor certain combinations over others, necessity seems to fall short of explaining the functional information of DNA.

Some scientists propose that it is a combination of chance and necessity. The most popular origin of life models are based on this theory. However, Stephen Meyer shows in his book that the two most popular models, the *RNA-first world* and the *Oparin* model, do not explain how functional information first arose. Ultimately these theories boil down to claiming that random chance causes functional information.

So if all of the naturalistic theories of origin of life fall short, then perhaps we should expand our options to theories that allow for intelligent agents.

## What if We Allow Intelligence?

It seems that all of the naturalistic explanations for the origin of life fall short of accounting for the information-

rich molecule, DNA. As Meyer points out, apart from DNA and the machinery in cells, such specified information is not found anywhere in the natural world.[\[5\]](#) The only time we see these properties is in human language and writing. So if DNA has the properties of something that was designed, then why not entertain the idea that it was designed?

Today design is not permitted as an explanation in science. However, historically, this has not been the case. In fact, it was a belief in an intelligible and coherent world created by God that motivated early scientists such as Newton, Boyle, and Pascal.[\[6\]](#) However, after the Enlightenment (mid-1700s), many scientists started operating under different assumptions. They assumed that only natural causes, such as chance and necessity, are permitted to explain observations.

Flash forward to Charles Darwin's time (1860s). Darwin looked at presently acting conditions to extrapolate back to the origin of all living things. He saw that environmental factors select for certain traits, such as beaks on finches. And he saw that things like dog breeding will select for certain desired traits. He therefore concluded that maybe the various animals and body plans came from conditions similar to this. He named this selective force, this breeder, natural selection. This was based on what Darwin knew in the 1850s, and some assumptions about intelligent causes influenced by Enlightenment thinking. At that time Darwin knew nothing about DNA. It would not be discovered until the 1950s.

Stephen Meyer discusses how presently there are no known natural causes for the kind of functional information we see in DNA. The only place we see this is in human language and writing. So perhaps we cannot assume natural causes. Maybe DNA arose by intelligent design. Furthermore, experimental efforts to try to produce DNA or RNA in the lab show that a chemist or a computer programmer must be involved in the experiment in order to obtain functional information. Natural selection cannot act as a breeder, because it does not have the end goal

in mind.

Intelligent Design is a strong possibility for explaining the origin of DNA. It is something that we see in operation today. And it is experimentally justified.

## **What Does This Have to Do with Christianity?**

We have been looking at the properties of DNA and how it has all of the characteristics of a written code. Using the methods of origins science that Stephen Meyer used in *Signature in the Cell*, we can conclude that intelligent design is the best explanation for the origin of DNA. Intelligence is causally adequate to produce a code like DNA. It is observable, in the sense that today intelligent agents produce codes. And any experiments that try to reproduce DNA seem to require the input of information by an intelligent agent to make anything meaningful. This is why Meyer calls DNA the signature in the cell. However, the science alone cannot tell us whose signature it is, so we need to look elsewhere for that. That's where Christianity comes in.

As Christians we believe that God reveals himself through general and special revelation. General revelation is God revealing things about himself in nature. Think of it like God's fingerprints on creation. Special revelation is what God has specifically revealed in the Bible. If we want to find out whose signature is in the cell, we need special revelation to inform us on that. And the Bible says this much. Right before Paul says that creation reveals the attributes of God in Romans 1:18-20, he says it is the gospel that brings salvation in verses 16 and 17.

From the science it is reasonable to say DNA first arose by intelligent design. DNA is one of many extra-Biblical clues pointing us to a designer. This evidence, taken with many

other extra-biblical evidences such as the fine-tuning of the universe for life, the moral law on our hearts, and even the way that we know gravity works the same today as it did yesterday, makes one suspicious that there must be a designer. Now take the evidences for the authority of Scripture from archeology and the Bible's internal structure and consistency and we have many reasons to believe that this designer is the God of the Bible. As Paul says in Romans 1, "His invisible attributes, namely, his eternal power and divine nature, have been clearly perceived, ever since the creation of the world, in the things that have been made. So they are without excuse" (v. 20). So, even though the science will not bring someone to a saving knowledge of Christ, they are without excuse because it does reveal God's attributes. Maybe when someone sees the Signature in the Cell, they will ask, whose signature is it?

## Notes

1. "After the early 1960s advances in the field of molecular biology made clear that the digital information in DNA was only part of a complex information-processing system, an advanced form of nanotechnology that mirrors and exceeds our own in its complexity, storage density, and logic of design." Stephen C. Meyer, *Signature in the Cell* (HarperOne, 2009), 14.
2. Bill Gates, *The Road Ahead* (Viking, 1995), 188; quoted in Meyer, *Signature*, 12.
3. Meyer, *Signature*, 29.
4. The only time the nucleotides in DNA interact with each other is when they are paired, A-T, C-G, and they do this through hydrogen bonding. However, this pairing is with nucleotides across from each other and serves to protect the DNA molecule. The coding has to do with the sequence of bases next to each other, and there is no chemical reason for one nucleotide to "prefer" being next to another.
5. "Apart from the molecules comprising the gene-expression



system and machinery of the cell, sequences of structures exhibiting such specified complexity or specified information are not found anywhere in the natural—that is, the nonhuman—world.” Meyer, *Signature*, 110.

6. In the radio transcript, I included James Maxwell in this list. While he is among scientists whose belief in God did influence his work, he lived from 1831-1879 which was after the beginning of the Enlightenment. I chose to take his name out here for clarity, although he is a good example of someone who did not hold to the typical presuppositions of the Enlightenment.

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## Origin Science

*There is a fundamental distinction between operation science and origin science. The founders of modern science had a Christian view of creation.*

### Origin Science versus Operation Science

Recently Probe produced a DVD based small group curriculum entitled *Redeeming Darwin: The Intelligent Design Controversy*. It has been a great way to inform Christians about Intelligent Design and show them how to use a conversation about this topic to share the gospel.

This year also marks the twentieth anniversary of a book Norman Geisler and I published entitled *Origin Science*.[\[1\]](#) In light of the current controversy concerning intelligent design, I want to revisit some of the points we made in this book because they help us better understand some of the key

elements in the debate about origins.

The foundational concept in the book was that there is a fundamental difference between operation science and origin science. Operation science is what most of us think of when we talk about science. It deals with regularities. In other words, there are regular recurring patterns that we can observe, and we can do experiments on those patterns. Observation and repeatability are two foundational tools of operation science.

Origin science differs from operation science because it does not deal with present regularities. Instead it focuses on a singular action in the past. As we say in the book, "The great events of origin were singularities. The origin of the universe is not recurring. Nor is the origin of life, or the origin of major new forms of life."[\[2\]](#)

We argued that "a science which deals with origin events does not fall within the category of empirical science, which deals with observed regularities in the present. Rather, it is more like forensic science."[\[3\]](#) In many ways, origin science is more like the scientific investigations done by crime scene investigators. The crime was a singular event and often there was no observer. But CSI investigators can use the available evidence to reconstruct the crime.

Likewise, research into origin science must use the available evidence (the bones and the stones) to try to reconstruct a past event. We therefore concluded that:

In origin science it is necessary to find analogies in the present to these events in the past. Thus, for example, if evidence is forthcoming that life can now be synthesized from chemicals (without intelligent manipulation) under conditions similar to those reasonably assumed to have once existed on the primitive earth, then a naturalistic (secondary-cause) explanation of the origin of life is

plausible. If, on the other hand, it can be shown that the kind of complex information found in a living cell is similar to that which can be regularly produced by an intelligent (primary) cause, then it can be plausibly argued that there was an intelligent cause of the first living organism.{4}

## Rise of Modern Science

When we discuss the differences between origin science and operation science, it is important to point out that evolutionists and creationist differ in what they believe caused the origin of the universe, the origin of life, and the origin of major life forms. "Evolutionists posit a secondary natural cause for them; creationists argue for a supernatural primary cause." {5}

Evolutionists argue that a naturalistic explanation is all that is necessary to explain these origin events. There is no need for the supernatural. Julian Huxley, speaking at the Darwin centennial celebration in Chicago, declared: "In the evolutionary pattern of thought there is no longer need or room for the supernatural. The earth was not created; it evolved. So did all the animals and plants that inhabit it, including our human selves, mind and soul as well as brain and body. So did religion." {6}

Although most scientists today make no room for the supernatural, that was not always the case. In fact, it can be argued that it was a Christian view of reality that essentially gave rise to modern science.

In a landmark article on this topic M.B. Foster asked: "What is the source of the un-Greek elements which were imported into philosophy by the post-Reformation philosophers, and which constitute the modernity of modern philosophy? And . . . what is the source of those un-Greek elements in the modern

theory of nature by which the peculiar character of the modern science of nature was to be determined?" These are two important questions. He said: "The answer to the first question is: The Christian revelation, and the answer to the second: The Christian doctrine of creation."[\[7\]](#)

Foster argued that modern empirical science did not emerge from a Greek view of nature. Instead it arose because the founders of modern science had a Christian view of nature. They "were the first to take seriously in their science the Christian doctrine that nature is created."[\[8\]](#)

Foster argued that only when the Greek concept of necessary forms in nature had given way to the Judeo-Christian idea of a contingent creation did it become necessary to take an empirical route to finding scientific truth. Once these scientists came to view nature as contingent creation it became necessary to use observation and experimentation to understand it. From there, modern science arose.

## **Francis Bacon**

Francis Bacon's belief in the concept of creation is well known. Bacon even confessed that his motivation to observe and experiment was based on the creation mandate in which God said to man: "Be fruitful and multiply, and fill the earth and subdue it; and have dominion over [it]." (Gen. 1:28).

Of this mandate to subdue creation Bacon wrote, "Only let the human race recover that right over nature which belongs to it by divine bequest, and let power be given it; the exercise thereof will be governed by sound reason and true religion."[\[9\]](#)

Speaking of the natural world, Bacon declared, "The beginning is from God: for the business which is at hand, having the character of good so strongly impressed upon it, appears manifestly to proceed from God who is the author of good, and

Father of Lights.”{10}

Bacon believed that a careful observer of nature could discover certain “fixed laws” which he could use in subduing the world and have dominion over creation. In fact, he believed that nature (like the Bible) is the revelation of God. So Christians need not fear that any discovery in God’s world (science) will destroy their faith in God’s Word (Scripture). For “if the matter be truly considered, natural philosophy is, after the word of God, at once the surest medicine against superstition and the most approved nourishment for faith, and therefore she is rightly given to religion as her most faithful handmaid, since the one displays the will of God, the other his power.”{11}

Bacon believed he could discover the orderly laws by which God established in the creation. He described three approaches:

The men of experiment are like the ant, they only collect and use; the reasoners resemble spiders, who make cobwebs out of their own substance. But the bee takes a middle course; it gathers its material from the flowers of the garden and of the field, but transforms and digests it by a power of its own.{12}

Therefore the modern scientist is neither a scholastic spider not an empirical ant but a Baconian bee who extracts from nature what is available for transformation.

Bacon’s understanding of Scripture was shaped by the writings of John Calvin. Both Calvin and Bacon were trained in the methods of Renaissance law. Calvin had applied this new method to Scripture, the book of God’s Word. Bacon adopted this legal method of inquiry and applied it to the book of God’s world.{13}

## Kepler and Galileo

Johannes Kepler's astronomical views were also bedded deeply in his theistic beliefs about creation and the Creator. He stated that we "will realize that God, who founded everything in the world according to the norm of quantity, also has endowed man with a mind which can comprehend these norms."[{14}](#)

Kepler viewed the universe as a great mathematical machine created by God. Thus he wrote,

My aim in this is to show that the celestial machine is to be likened not to a divine organism but rather to a clockwork . . . insofar as nearly all the manifold movements are carried out by means of a single, quite simple magnetic force, as in the case of a clockwork all motions [are caused] by a simple weight. Moreover I show how this physical conception is to be presented through calculation and geometry.[{15}](#)

Kepler assumed (as the Pythagoreans did) that the universe was mathematically analyzable. But unlike the Greeks, Kepler believed that since the observable physical world was a creation of God, one could come to know God's thoughts by studying the physical laws of the universe.

Another great astronomer was Galileo. He believed "the Holy Scriptures and Nature are both produced by the Word of God; the former is the results of the dictation of the Holy Spirit, and the latter is the most obedient agent of the ordinances of God." Galileo also added: "I do not believe the same God who gave us our senses, our reason, and our intellect intended that we should neglect these gifts and the information they give us about nature, or that we should deny what our senses and our reason have observed by experiment or logical demonstration."[{16}](#)

Galileo believed that the observable laws of nature operate

with unalterable regularity. Therefore scientific theories must fit nature. Nature cannot be changed to fit our scientific theories. God works in regular ways in the operation of his universe. He added that mere ignorance of natural causes of the operation of the world is not a sufficient justification for positing a supernatural cause.{17}

The supernatural is the source of the natural world, but the natural is the proper domain of science. Science deals with “natural phenomena” which supernatural realm is not subject to such test.{18} Thus, mere ignorance of natural causes of the operation of the world is not a sufficient justification for positing a supernatural cause.

By this distinction Galileo hoped to secure the domain of operation science from unjustified intrusions by religious dogma while retaining nonetheless his belief in a supernatural origin of the natural world.

## **Isaac Newton**

Isaac Newton believed that God created the solar system. He held that the entire solar system was formed from a “common chaos” which is described in Genesis 1:2. From this chaos the “spirit of God,” by means of gravitational attraction, formed the separate planets.” In a letter to Thomas Burnet he insisted that “where natural causes are at hand God uses them as instruments in his works, but I do not think them alone sufficient for ye creation.”{19}

For Newton, “this Being governs all things, not as the soul of the world, but as Lord over all, and on account of his dominion he is wont to be called Lord God or Universal Ruler.” For “Deity is the dominion of God not over his own body, as those imagine who fancy God to be the soul of the world, but over servants. The Supreme God is a Being eternal, infinite,

absolutely perfect.”{20}

Newton believed that God had dominion over all His creation:

And from his true dominion it follows that the true God is a living, intelligent, and powerful Being; and, from his other perfections, that he is supreme, or most perfect. He is eternal and infinite, omnipotent and omniscient; that is, his duration reaches from eternity to eternity; his presence from infinity to infinity; he governs all things, and knows all things that are or can be done.{21}

This Christian concept of God was at the very center of Newton’s cosmology. It was the very foundation of his scientific investigation. According to Newton, the universe was God’s great machine, and scientists could discover the laws by which this machine operates because these are the laws of God.{22} Thus for Newton, God is the primary cause of the universe and natural laws are the secondary causes by which God operates in the natural world.

Sadly there is a bitter irony in all of this for creationists. The scientific method we employ today was built on the belief in a Creator and His creation. Now, a few centuries later, the science has been used to replace creationist beliefs about origins.

These early scientists shifted their emphasis from a primary cause (God) to secondary causes (natural laws) through which He operates in the natural world. Over time, the subsequent preoccupation with these secondary causes caused scientists to reject the legitimacy of positing a primary cause for these origin events. “In short, natural science came to bite the supernatural hand that fed it.”{23}

## Notes

1. Norman Geisler and Kerby Anderson, *Origin Science* (Grand Rapids, MI: Baker Book House, 1987).



2. Ibid., 15.
3. Ibid., 14.
4. Ibid., 16.
5. Ibid., 15.
6. Ibid., 19.
7. Ibid., 37.
8. Ibid.
9. Ibid., 40.
10. Ibid.
11. Ibid., 41.
12. Ibid., 42.
13. Ibid.
14. Ibid., 44.
15. Ibid.
16. Ibid., 46.
17. Ibid., 49.
18. Ibid.
19. Ibid., 50.
20. Ibid.
21. Ibid., 51.
22. Ibid.
23. Ibid.