The case for “intelligent design” based on DNA

Book and topic review by Jason Browning

Signature in the Cell
Stephen C. Meyer
Signature in the Cell (2009)
www.signatureinthecell.com

- How cutting-edge science reveals the design hypothesis as the best explanation for the origin of the information necessary to produce the first life
- A Times Literary Supplement 2009 “Book of the Year” by Thomas Nagel
Stephen C. Meyer

- Ph. D. History and Philosophy of Science, Cambridge, 1991
- M. Phil. History and Philosophy of Science, Cambridge, 1987
- B.S. Physics/Earth Science, Whitworth, 1981
- Director and Senior Fellow at the Discovery Institute, Seattle, WA
What is “Intelligent Design”?

- Intelligent Design = the study of intelligent causes and their effects
- “Design” is rigorously formulated as a scientific theory of information

- Life demands an explanation
- Darwinism tries to make physical causes do the work of an intelligent cause
God designs the great white shark
Only two views of reality

God

- **IS**
  - He created the universe and us
  - The Bible and Christianity

- **ISN’T**
  - A natural process of evolution must have taken place
  - Religion is man-made
Stated another way...
The ultimate reality is

- **Mind**
  - Material reality issues from a preexisting mind or shaped by a preexisting intelligence

- **Matter/energy**
  - Everything comes from matter/energy
  - Matter comes first – conscious mind arrives much later and only then as a by-product of material processes
We live in a confused world

So many “authoritative” views regarding origins, what is really true?
The God Delusion

- Sold over 2 million copies to date
- In late 2006:
  - #2 on Amazon.com
  - #4 on New York Times Hardcover Nonfiction Bestseller list
- The main conclusion of the book:
  - “The factual premise of religion – the God Hypothesis – is untenable. God almost certainly does not exist.” (page 189)
Discover magazine, October 2010
Assessing various things that have taken place over the past 30 years
About The BioLogos Foundation

BioLogos explores, promotes, and celebrates the integration of science and Christian faith. Click Here to read about our various projects.

Our Mission

The BioLogos Foundation is a group of Christians, many of whom are professional scientists, biblical scholars, philosophers, theologians, pastors, and educators, who are concerned about the long history of disharmony between the findings of science and large sectors of the Christian faith. We believe that the Bible is the inspired Word of God. We also believe that evolution, properly understood, best describes God’s work of creation. Founded by Dr. Francis Collins, BioLogos addresses the escalating culture war between science and faith, promoting dialog and exploring the harmony between the two. We are committed to helping the church – and students, in particular – develop worldviews that embrace both of these complex belief structures, and that allow science and faith to co-exist peacefully.
Introduction

Chapters 8 – 10 of *The Language of God*, by Dr. Francis Collins, contain brief descriptions of Theistic Evolution, Intelligent Design and Creationism. Below are definitions of each term and clarifying points to distinguish them from BioLogos.

BioLogos

BioLogos is most similar to Theistic Evolution. Theism is the belief in a God who cares for and interacts with creation. Theism is different than deism, which is the belief in a distant, uninvolved creator who is often little more than the sum total of the laws of physics. Theistic Evolution, therefore, is the belief that evolution is how God created life. Because the term evolution is sometimes associated with atheism, a better term for the belief in a God who chose to create the world by way of evolution is BioLogos. BioLogos comes from the Greek words *bios* (life) and *logos* (word), referring to the gospel of John:

"In the beginning was the Word, and the Word was with God, and the Word was God."
I Love Jesus and I Accept Evolution

by Denis Lamoureux
Wipf & Stock Publishers, 2009
Buy on Amazon

"Although there are many fine books that treat the compatibility of faith and science in general, Lamoureux is alone in treating with candor, sophistication, and pastoral sensitivity the interpretive issues that face any Christian reader of Scripture." - Peter Enns

Description

"In this thought-provoking book, born-again Christian Denis O. Lamoureux argues that the God of the Bible created the universe and life through evolution—an ordained, sustained, and design-reflecting natural process. In other words, evolution is not the result of blind chance and our creation is not a mistake. Lamoureux challenges the popular assumption that God disclosed scientific facts in the opening chapters of Scripture thousands of years before their discovery by modern science. He contends that in the same way the Lord meets us wherever we happen to be in our lives, the Holy Spirit came down to the level of the inspired biblical writers and used their ancient understanding of origins in order to reveal inerrant, life-changing Messages of Faith. Lamoureux also shares his personal story and struggle in coming to terms with evolution and Christianity."

- Wipf and Stock Publishers
"Science and the Sacred" is pleased to feature essays from various guest voices in the science-and-religion dialogue. Today's entry was written by Denis Lamoureux. Denis Lamoureux is the associate professor of science and religion at St. Joseph's College in the University of Alberta. He holds a PhD in evangelical theology and a PhD in evolutionary biology. Lamoureux is the author of the books *Evolutionary Creation: A Christian Approach to Evolution* (2008) and *I Love Jesus and I Accept Evolution* (2009).

In the final chapter of *Evolution Creation: A Christian Approach to Evolution* (2008), Denis O. Lamoureux opens, "My central conclusion in this book is clear: Adam never existed, and this fact has no impact whatsoever on the foundational beliefs of Christianity." This is the first entry in a three-part series, in which Lamoureux answers the question: Was Adam a Real Person?
Evolution attempts to explain
Design without a designer!
The theory provides a “designer substitute”
If it could be demonstrated that any complex organ existed, which could not possibly have been formed by numerous, successive, slight modifications, my theory would absolutely break down. But I can find out no such case.

Charles Darwin - Origin of Species (1859)
Great moments in evolution
“It was Darwin’s greatest accomplishment to show that the directive organization of living beings can be explained as the result of a natural process, natural selection, without any need to resort to a Creator or other external agent.”

- Evolutionary biologist Francisco Ayala

Thus, Darwinian biologists not only affirm that natural selection can produce “design without a designer”, they also assert that it is “creative without being conscious” (pg. 19)

- “Biologists must constantly keep in mind that what they see was not designed, but rather evolved”

- Francis Crick
Is there design in living things?

Let’s look at a few examples
“Biology is the study of complicated things that give the appearance of having been designed for a purpose” (pg. 1)
Not living, but obviously designed
Is this a natural rock formation?
The bacterial flagellum of the *E. coli* bacteria has a motor structure of drive shaft, rotor, bushings, propeller, and a rotational speed of about 20,000 rpm.
Nano-tugboat. A kinesin molecule "walks" along a biopolymer "track" by alternately attaching and disconnecting each of two "feet," hauling cellular cargo in its wake.
The Bombardier Beetle

Defends itself by squirting predators with a high-pressure jet of boiling liquid, involving several complex chemical reactions!
The Monarch Butterfly

1. Egg
2. Caterpillar
3. Chrysalis
   (complete chemical dissolution of the caterpillar and re-formation of the tissues of the butterfly)
4. Butterfly
   (it lays the egg)
Has a brain the size of a pinhead and yet migrates to a location 3,000 miles away and navigates there with an accuracy of 100 feet.
Information is the key idea

It is the main subject of *Signature in the Cell*

**BIG IDEA #1**
Life is based on information
Life boils down to “information”

DNA is the blueprint of life
Information = knowledge or instructions; a blueprint

The more complex something is, the more information it contains

- More words are needed to describe it
- Longer instructions are needed to build it

The information for how to build, operate, and repair life is coded in the DNA of the genome

NJBibleScience.org
“Sequence hypothesis”: Certain sequences of chemical bases along the spine of the DNA molecule convey precise instructions for building proteins
- Francis Crick, co-discoverer with James Watson of the structure of DNA
Your genome has 3 billion base pairs
Measuring Genetic Information

- Bible: 3.5 million letters
- Britannica 2002: 200 million letters
- CD: 650 million letters
- DVD: 4.7 billion letters
- Human genome: 6 billion genetic letters

About 2000 x more than the Bible
Information = Message with a Purpose

Information communicates purposeful ideas from one mind/machine to another mind/machine

Machines are a product of minds
A message must have meaning and purpose for the receiver for it to be information

**Meaning:**
- Example: for an English-speaking person, “cat” = a small furry animal (has meaning)
- “xgh” = not an English word, has no meaning

**Purpose:**
- Randomly texting the word “cat” to someone has no purpose and therefore provides no information
- Texting the word “cat” in response to a prior question about animals has a purpose and provides information
Does DNA hold information?
“The machine code of the genes is uncannily computer-like”
  - Richard Dawkins

“Apart from differences in jargon, the pages of a molecular-biology journal might be interchanged with those of a computer-engineering journal”
  - Richard Dawkins

“DNA is like a computer program but far, far more advanced than any software ever created”
  - Bill Gates

The Human Genome Project showed the importance of information to living things – biology has entered an information age (pg. 15)
Must explain

- The origin of DNA’s capacity to store digitally encoded information
- The origin of the large amount of information in DNA
- The origin of the integrated complexity, the functional interdependence of parts, of the cell’s information processing system
“The problem of the origin of life is clearly basically equivalent to the problem of the origin of biological information”
- Origin-of-life researcher Bernd-Olaf Kuppers

The DNA enigma – the mystery of the origin of the information needed to build the first living organism
The DNA is not the information

The DNA holds information but is not the information itself

BIG IDEA #2
There is big distinction between information itself and the housing of that information
“The gene is a package of information, not an object. The pattern of base pairs in a DNA molecule specifies the gene. But the DNA molecule is the medium, it’s not the message”

Evolutionary biologist George Williams
Changing the ink distribution on a newspaper will not make a better story
Scratching a CD will not make a better song
Yet mutating the DNA has supposedly made better organisms!
We must not confuse the physical representation of information with the information itself!

The information content in this PowerPoint is the same:
- Stored on a computer hard-drive
- Stored on a CD,
- Viewed on a screen
- Printed on paper
- Read to you by someone
Charles Darwin and his 19th century contemporaries viewed "protoplasm" as the holistic content of a cell; in other words, cells were composed of a mysterious "proto-plasm," a substance that had the ability of self replication.

-- biology-online.org
The complexity of the cell

- Apart from the molecules comprising the gene-expression system and machinery of the cell, sequences or structures exhibiting such specified complexity or specified information are not found anywhere in the natural world (pg. 110)

- While computer scientists were developing machine languages, biologists were discovering that living cells had been using something akin to machine code all along (pg. 110)
Gene expression: transcription (template copy) and translation (protein formation)

The main point: Using DNA genetic information to build proteins is a complex process
Cell information processing system – more than just the DNA text

10 proteins

106 proteins

32 proteins

12 proteins
Another enigma

- The production of proteins requires DNA
- The production of DNA requires proteins

“Only whole cells may contain all the necessary machinery for self-reproduction... DNA is incapable of making copies of itself... proteins are made from other proteins, and without that protein-forming machinery nothing can be made”
  - Evolutionary biologist Richard Lewontin
“The code is meaningless unless translated”
- Jacques Monod

The code cannot be translated except by using certain products of its translation

Even the simplest living things operate as complex system of multiple interdependent parts

How this feature of life could have arisen is "exceedingly difficult to imagine"
- Jacques Monod
Encoded information is worthless without a system that can use, read, translate or process the information.

DNA by itself can do nothing.
Origin of life theories

“I think you should be more explicit here in step two.”
Oparin’s 1936 chemical evolutionary scenario

1. **Raw Materials**
   - Ammonia \( \text{NH}_3 \)
   - Hydrogen \( \text{H}_2 \)
   - Carbon Dioxide \( \text{CO}_2 \)
   - Methylene \( \text{CH}_2 \)
   - Water \( \text{H}_2\text{O} \)

2. **Energy Source and Environment**
   - Lightning
   - UV Radiation from Sun

3. **Monomers**
   - Amino Acids

4. **Polymers**
   - Chains of Amino Acids (Polypeptides)

5. **Clumping**
   - Coacervates

6. **Primitive Metabolism and Competition for Survival**

7. **First Living Cell**
Has many problems, including:
1. Conditions that create amino acids rapidly destroy proteins
2. Had to start with pure compounds not normally found in life
3. Had to carefully control how energy was added to the system
4. Had strategic trap to remove products before they were destroyed
5. Produced both left and right-handed forms

The main point:
Simulation experiments have not produced life
No chemical bond links adjacent letters – any letter can attach equally at any site

The main point: Chemical “predestination” did not form the DNA sequences
Meaningful English phrase is hitting a functional target within a larger space of possible letter arrangements.

**P =** All possible combinations of English letters of a given length.

**T =** All meaningful combinations of English letters of the same length.

**S =** A specific meaningful sequence (e.g. “Time and tide wait for no man”)

NJBibleScience.org
For a 150 amino-acid protein domain: ratio of circles P to T = Milky Way galaxy to a cotton ball

The main point:
The chance of forming a functional gene by random sequencing of genetic letters in a “primordial soup” is impossibly small (1 chance in $10^{164}$)

Douglas Axe experiments published 2004
There are $10^{80}$ proton/neutrons/electrons in the entire universe.

Getting one functional protein by chance in a primordial soup is 1 in $10^{164}$.

Producing the proteins necessary to service a one-cell organism by chance is 1 in $10^{40,000}$.

=> Probability of building a minimally complex cell by chance is unimaginably small.
Richard Dawkins makes the claim that "cumulative selection" is the source of information creation in evolution.

"In cumulative selection ... the results of one sieving process are fed into a subsequent sieving. The end product of one generation of selection is the starting point for the next generation of selection, and so on for many generations."
Dawkins's example:
Initial sequence:
WDLMNLT DTJBKWIRZREZLMQCO P
Predetermined target sentence:
METHINKS IT IS LIKE A WEASEL

First test:
Gen. 01  WDLMNLT DTJBKWIRZREZLMQCO P
Gen. 02  WDLTMNLT DTJBSWIRZREZLMQLO P
Gen. 10  MDLDMNLS ITJISWHRZREZ MECS P
Gen. 20  MELDINLS IT ISWPRKE Z WECSCL
Gen. 30  METHINGS IT ISWLIKE B WECSCL
Gen. 40  METHINKS IT IS LIKE I WEASEL
Gen. 43  METHINKS IT IS LIKE A WEASEL
Dawkins's example:
Initial sequence:
WDLMNLT DTJBKWIRZREZLMQCO P
Predetermined target sentence:
METHINKS IT IS LIKE A WEASEL

Second test:
Gen. 01  Y YVMQKZPFJXWVHLAWFVCHQXYOPY
Gen. 10  Y YVMQKSPFTXWSHLIKEFV HQYSPY
Gen. 20  YETHINKSPITXISHLIKEFA WOYSEY
Gen. 30  METHINKS IT ISSLIKE A WEFSEY
Gen. 40  METHINKS IT ISBLIKE A WEASES
Gen. 50  METHINKS IT ISJLIKE A WEASEO
Gen. 60  METHINKS IT IS LIKE A WEASEP
Gen. 64  METHINKS IT IS LIKE A WEASEL
“Dawkins selects a **target sentence** and his entire program is designed towards this goal. This game can be played with any random initial sequence and the goal will always be reached, because the **programming is fixed**. Even the number of letters is given in advance. It is obvious that no information is generated, on the contrary, it has been predetermined.”
1: Building blocks of RNA arise by chance
2: Building blocks link up to form chains
3: RNA replicase arises by chance
4: RNA enzymes synthesis proteins from RNA template
5: Protein-based synthesis replaces RNA synthesis
6: Genetic information from RNA into DNA
7: Modern system arises with membrane

The most popular theory of how life began

NJBibleScience.org
Problems with the RNA world

1. RNA building blocks are hard to make and easy to destroy
2. RNA molecules possess very few of the useful properties of proteins
3. No explanation of how self-replicating RNA evolved into modern cells that rely on proteins
4. Doesn’t explain the origin of genetic information
5. Engineered RNA molecules don’t simulate undirected chemical evolution
Intelligent design is the best explanation for life

“Chance”, “necessity” or some combination of these cannot explain life
Best explanation of past events:

- Causal adequacy – the cause is capable of producing the event in question
- Causal existence – the cause existed at the right time and place
  - If there is only one possible cause then its existence is established
  - **Only intelligence is known to cause coded information**
Life is contingent (did not have to occur)

Life contains many irreducibly complex systems (multiple components simultaneously necessary for overall function)

Life systems embody (pre) specified patterns independent of the actual living systems (necessary functionality, e.g. reproduction, ingest food, convert to useful energy)
Is the case for intelligent design “scientific”? 

1. Based on empirical evidence (not religion) 
2. Uses established scientific methods 
3. Is a testable theory 
4. Exemplifies historical scientific reasoning 
5. Addresses a specific question in evolutionary biology (“how did the appearance of design in living systems arise”) 
6. Supported by peer-reviewed scientific literature
“If living things – things that we manifestly did not design ourselves – bear the hallmarks of design, if they exhibit a signature that would lead us to recognize intelligent activity in any other realm of experience, then perhaps it is time to rehabilitate this lost way of knowing and to rekindle our wonder in the intelligibility and design of nature that first inspired the scientific revolution.”

-- Stephen Meyer closing remark
Natural Selection is True – it is NOT Evolution – it involves a LOSS of information

Natural selection selects from already existing information and causes a loss of information
Evolutionary View

- No information
- Gradual increase over time with no intelligence (via mutation)
- Much information

Note: mutation / natural selection only operates after the first replicating life form exists.

Creation View

- Much information in each created kind from mind of God
- Degradation over time due to the fall (build up of mutations)
- Kind diversifies into species due to environmental differences expressing different subsets of existing information
Conclusions from information

- Life is based on information
- Information always comes from a mind
- Information can NEVER arise from a physical process (like evolution)
DNA is God’s signature in the cell!
It is scientific proof for the existence of God!

BIG IDEA #3
The information of life came from the mind of God
The LORD God formed the man from the dust of the ground and breathed into his nostrils the breath of life, and the man became a living being

-- Genesis 2:7
Psalms 19:1-4 The heavens declare the glory of God; the skies proclaim the work of his hands. Day after day they pour forth speech; night after night they display knowledge. There is no speech or language where their voice is not heard. Their voice goes out into all the earth, their words to the ends of the world.
Horsehead Nebula (www.nasa.gov)
20 For since the creation of the world God's invisible qualities—his eternal power and divine nature—have been clearly seen, being understood from what has been made, so that men are without excuse. 21 For although they knew God, they neither glorified him as God nor gave thanks to him, but their thinking became futile and their foolish hearts were darkened. 22 Although they claimed to be wise, they became fools ... 25 They exchanged the truth of God for a lie, and worshiped and served created things rather than the Creator
Our information is getting distorted!

The human genome is degenerating, as each person accumulates a minimum of 100 point mutations per generation. There is nothing man can do to halt it. It is biologically inevitable. It is why species go extinct.

We live in a fallen world!
(Jesus is speaking)
I tell you the truth, whoever hears my word and believes Him who sent me has eternal life and will not be condemned; He has crossed over from death to life. (John 5:24)
The big ideas

BIG IDEA #1
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BIG IDEA #2
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