

## God or Goo? A Biblical and Scientific Investigation of our Past – Part II

### I. OPEN IN PRAYER

### II. REVIEW

- a. In the Beginning
  - i. God or Goo? – Part I
  - ii. Created or Evolved? – Part II
  - iii. On Purpose or By Accident? – Part III
- b. God or Goo?
  - i. Where did I come from? (3 questions)
    1. This is a question of worldview.
  - ii. The Biblical Worldview – In the beginning God
    1. Core Belief #1: There is a God
    2. Core Belief #2: The Bible is God’s Word
    3. In the beginning God...READ THE FIRST THREE WORDS OF EACH VERSE IN GENESIS 1
    4. Summary:
      - a. About 6000 years ago God made everything in just six days...
    5. I cannot prove to you that everything happened just as the Bible says. I cannot prove God created everything in six days. I accept this by faith.
  - iii. The Evolutionary Worldview – In the beginning Goo...
    1. Belief #1: Naturalism
      - a. No God allowed
      - b. Explain the origin of this painting...no painter allowed.
    2. Summary:
      - a. About 14.5 billion years ago the universe exploded into existence from absolutely nothing...Cosmic Evolution
      - b. About 3 billion years ago the earliest lifeforms spontaneously appeared on Earth... Organic Evolution
      - c. About 3 million years ago the first humans arose through the process of evolution...Darwinian Evolution

### III. INTRODUCTION

- a. When we ask, “Where did I come from?” we are really asking three questions?
  - i. How did matter come into existence? You have to start with something, so where did that starting material come from? The atoms, the molecules, the stuff that everything is made of.
  - ii. How did non-living matter become alive? Now at some point that stuff had to become alive.
  - iii. How did complex lifeforms (like humans) arise? Being “alive” is simply not enough...bacteria are alive, but you’re a bit more complex than a bacterium so where did “complex” lifeforms come from.
- b. 3 Pillars of Evolutionary Worldview
  - i. How did matter come into existence? Cosmic Evolution
  - ii. How did non-living matter become alive? Organic Evolution
  - iii. How did complex lifeforms (like humans) arise? Darwinian Evolution
- c. Our goal today...
  - i. Not to prove that Creation is true
  - ii. Not to prove that Evolution is false
  - iii. To demonstrate that if a person accepts the Evolutionary Worldview they are doing so by faith. Not by reason, not by intellect, not by evidence...but by old-fashioned faith.
    1. “Our willingness to accept scientific claims that are against common sense is the key to an understanding of the real struggle between science and the supernatural. We take the side of science *in spite* of the patent absurdity of some of its constructs... in spite of

the tolerance of the scientific community for unsubstantiated just-so stories, because we have a prior commitment, a commitment to materialism...Moreover, that materialism is absolute, for we cannot allow a Divine Foot in the door.” Richard Lewontin, a Harvard evolutionary biologist, mathematician, and geneticist<sup>1</sup>

#### IV. THE FIRST PILLAR: COSMIC EVOLUTION

##### a. Astronomy Bootcamp

##### i. Voyager 1<sup>2</sup>

1. “In September 1977, [NASA](#) launched [Voyager 1](#), a 722-kilogram (1,592 lb) [robotic spacecraft](#) on a mission to study the outer Solar System and eventually [interstellar space](#).<sup>[3][4]</sup> After the [encounter with the Jovian system](#) in 1979 and the [Saturnian system](#) in 1980, the primary mission was declared complete in November of the same year. *Voyager 1* was the first space probe to provide detailed images of the two largest planets and their major [moons](#).”
2. 40,000 MPH
3. “The spacecraft, still travelling at 40,000 miles per hour (64,000 km/h), is the farthest man-made object from Earth and the first one to leave the Solar System.<sup>[5]</sup> Its mission has been extended and continues to this day, with the aim of investigating the [boundaries of the Solar system](#), including the [Kuiper belt](#), the [heliosphere](#) and interstellar space. Operating for 39 years, 4 months and 23 days as January 30, 2017, it receives routine commands and transmits data back to the [Deep Space Network](#).”
4. The Pale Blue Dot
  - a. A photograph of planet Earth taken on February 14, 1990 at a distance of 3.7 billion miles
  - b. “**Pale Blue Dot** is a photograph of planet [Earth](#) taken on February 14, 1990, by the [Voyager 1 space probe](#) from a record distance of about 6 billion kilometers (3.7 billion miles, 40.5 [AU](#)), as part of the [Family Portrait](#) series of images of the [Solar System](#). *Voyager 1*, which had completed its primary mission and was leaving the Solar System, was commanded by [NASA](#) to turn its camera around and take one last photograph of Earth across a great expanse of space, at the request of astronomer and author [Carl Sagan](#). In the photograph, Earth's apparent size is less than a [pixel](#); the planet appears as a tiny dot against the vastness of [space](#), among bands of sunlight scattered by the camera's optics.”

##### ii. Our planet is just a spec in the solar system...

1. Sun = 10 ft. sphere (actually 865,000 miles across)
2. Mercury = 411 ft. away
3. Venus = 776 ft. away
4. Earth = 1071 ft. (1.09 in wide)
5. Mars = 1636 ft.
6. Jupiter = 1.06 mi
7. Saturn 1.94 mi

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<sup>1</sup>Our willingness to accept scientific claims that are against common sense is the key to an understanding of the real struggle between science and the supernatural. We take the side of science in spite of the patent absurdity of some of its constructs, in spite of its failure to fulfill many of its extravagant promises of health and life, in spite of the tolerance of the scientific community for unsubstantiated just-so stories, because we have a prior commitment, a commitment to materialism. It is not that the methods and institutions of science somehow compel us to accept a material explanation of the phenomenal world, but, on the contrary, that we are forced by our a priori adherence to material causes to create an apparatus of investigation and a set of concepts that produce material explanations, no matter how counter-intuitive, no matter how mystifying to the uninitiated. Moreover, that materialism is absolute, for we cannot allow a Divine Foot in the door. *Richard Lewontin, Billions and billions of demons (review of The Demon-Haunted World: Science as a Candle in the Dark by Carl Sagan, 1997), The New York Review, p. 31, 9 January 1997.*

<sup>2</sup> [https://en.wikipedia.org/wiki/Pale\\_Blue\\_Dot](https://en.wikipedia.org/wiki/Pale_Blue_Dot)

8. Uranus = 3.91 mi
  9. Neptune = 6.13 mi
  10. Pluto = 8.04 mi
  11. Voyager 1 = 27.92 mi
- iii. Our solar system is just a spec in the milky way galaxy...
    1. An estimated 250 billion stars...that's a lot
      - a. When you look up at the night sky you are looking at the stars which fill our galaxy.
    2. If the sun were a ten foot sphere...the nearest star neighbor would be ~55,000 miles away! WOW!
      - a. Alpha Centauri (A and B, and proxima centauri) @ ~4.3 lightyears away
    3. Altogether the Milky Way galaxy is approximately 100,000 light-years across (at this point the distances become so big that they are meaningless).
    4. Is there anything beyond this?
  - iv. Our milky way galaxy is just a spec in the universe.
    1. The Hubble space telescope
      - a. Launched in 1990
      - b. Cost \$4.7 billion
      - c. Length: 43.5 ft
      - d. Weight: 24,500 lb
      - e. Orbit: altitude of 353 miles at 17,500 mph
      - f. Length: 43.5 ft (13.2 m)
    2. Hubble Ultra Deep Field
      - a. A tiny area of space about the size of a grain of sand held at arms length was stared at for 11.3 days
      - b. An estimated 10,000 galaxies
  - v. I don't know about you, but when I see this amazing universe I think:
    1. "The Heavens declare the glory of God; and the firmament showeth his handiwork." Psalm 19:1
    2. "When I consider the heavens the work of thy fingers, the moon and the stars, which thou hast ordained; what is man that thou are mindful of him? Or the son of man that thou visitist him." Psalm 8:3-4
  - vi. Now what if you are stuck with a worldview that says, "No God ALLOWED." You have a lot of explaining to do.
- b. The Big Bang
    - i. "The universe exploded out of nothingness about 13 billion years ago. Scientists call this violent beginning the Big Bang...in a single second, the universe grew from being smaller than an atom to being 20,000 light-years wide. It is still expanding, and may continue to do so forever."<sup>3</sup>
    - ii. The Big Bang is biblical...sort of...
      1. [2 Pe 3:10](#) But the day of the Lord will come as a thief in the night; in the which the heavens shall pass away with a great noise, and the elements shall melt with fervent heat, the earth also and the works that are therein shall be burned up.
    - iii. Big problems with the Big Bang? The big problems with removing God from the picture.
      1. Where did all of the matter come from?
      2. Where did all of the order come from?
      3. Trust your intuition...
    - iv. Where did all of the matter come from?

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<sup>3</sup>Guide to Space: A Photographic Journey Though the Universe

1. It come from NOTHING...
  - a. "...the observable universe could have evolved from an infinitesimal region. It's then tempting to go one step further and speculate that the entire universe evolved from literally nothing."<sup>4</sup>
  - b. "...nothing really means nothing...from this state of nothingness the universe began in a gigantic explosion..."<sup>5</sup>
  - c. "The universe burst into something from absolutely nothing-zero, nada. And as it got bigger, it became filled with even more stuff that came from absolutely nowhere. How is that possible? Ask Alan Guth. His theory of inflation helps explain everything."<sup>6</sup>
2. Trust your intuition...
  - a. Silly ideas described by smart people using complex terms are still silly ideas.
  - b. You can't tell me everything came from nothing...I know too much about nothing.
3. **The Law of the Conservation of Matter (1<sup>st</sup> Law of Thermodynamics)**
  - a. Matter (and energy) cannot be created or destroyed, only changed in form.
    - i. Example: Campfire...wood→H<sub>2</sub>O, CO<sub>2</sub>, ashes, heat
  - b. "At a singularity, all the laws of physics would have broken down... Even the amount of matter in the universe, can be different to what it was before the Big Bang, as the Law of Conservation of Matter will break down at the Big Bang." - Stephen Hawking, astrophysicist
  - c. WAIT A SECOND! I asked you for a natural explanation of the universe and in order to provide it you have to violate the laws of nature! The Big Bang is nothing more than a secular miracle dressed up in scientific jargon.
- v. Where did the order come from?
  1. It's not just enough to have stuff, but that stuff must have just the right properties in order to exist.
  2. The Fine-Tuned Universe
    - a. "There's now broad agreement among physicists and cosmologists that the universe is fine tuned for life." Paul Davies
  3. ILLUSTRATION: A fine-tuned orchestra. Dozens of instruments all tuned to the same pitch. This is why, before a concert, the oboist plays an A and all of the other instruments are tuned to this note. You don't want it to be sharp or flat, but just right.
  4. ILLUSTRATION: Goldilocks...not too hot, not too cold...just right.
  5. SCIENTIFIC ILLUSTRATION: Earth is 93,000,000 miles from the sun. If it was much closer, it would be much too hot and life could not exist. If it was further away, it would be much too cold and life could not exist.
  6. But the problem is much more basic:
    - a. Think ATOMS, protons, electrons...
      - i. Structure of an atom...
      - ii. The periodic table...
  7. Quotes:
    - a. "The Laws of Physics begin with a list of elementary particles like electrons, quarks, and photons, each with special properties such as mass and electric

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<sup>4</sup>Alan Guth & P. Steinhardt *Scientific American*, May 1984 p.128 See Darling, David, "On Creating Something from Nothing,"

<sup>5</sup>HBJ *General Science*, 1989, p. 362 "In the realm of the universe, nothing really means nothing. Not only matter and energy would disappear, but also space and time. However, physicists theorize that from this state of nothingness the universe began in a gigantic explosion about 16.5 billion years ago."

<sup>6</sup>Discover Magazine, Cover, April 2002

- charge. These are the objects that everything else is built out of. **No one knows why the list is what it is or why the properties of these particles are exactly what they are.**" - Leonard Susskind<sup>7</sup>
- b. "If the protons were 0.2% heavier, they would decay into neutrons unable to hold onto electrons, so there would be no stable atoms around. If the proton-to-electron mass ratio were much smaller, there could be no stable stars, and if it were much larger, there could be no ordered structures like crystals and DNA molecules." – Max Tegmark, cosmologist<sup>8</sup>
  - c. "...it's shocking to find how many of the familiar constants of the universe lie within **a very narrow band that makes life possible**. If a single one of these accidents were altered, stars would never form, the universe would fly apart, DNA would not exist, life as we know it would be impossible, Earth would flip over or freeze, and so on." – Michio Kaku, theoretical physicist<sup>9</sup>
  - d. "The laws of nature form a system that is **extremely fine-tuned**, and very little in physical law can be altered without destroying the possibility of the development of life as we know it." – Stephen Hawking, theoretical physicist<sup>10</sup>
8. HOW DO THEY GET AROUND THIS?
- a. Multiverse: *Ultimate Guide to the Multiverse...*<sup>11</sup>
    - i. "...our most successful theories lead to the inescapable conclusion that our universe is just a speck in a vast sea of universes."
      1. Sci-fi: parallel universe
    - ii. "The multiverse is not some kind of optional thing, like can you supersize or not...it's there and we need to deal with it." – Raphael Bousso
    - iii. "One of their main motivations is the need to explain **why the physical laws underlying our universe seem so finely tuned** as to allow galaxies, stars, planets, complex chemistry, life – and us – to exist. **Rather than appealing to God or blind luck, some argue that our existence sets parameters that reliably pluck universes like ours from the bottomless grab-bag of the multiverse.**"
  - b. **"Is there another copy of you reading this article, deciding to put it aside without finishing this sentence while you are reading on?** A person living on a planet called Earth, with misty mountains, fertile fields and sprawling cities, in a solar system with eight other planets. The life of this person has been identical to yours in every respect – until now, that is, when your decision to read on signals that your two lives are diverging. **You probably find this idea strange and implausible, and I must confess that this is my gut reaction too. Yet it looks like we will just have to live with it, since the simplest and most popular cosmological model today predicts that this person actually exists in a Galaxy about  $10^{10^{29}}$  meters from here.**" Max Tegmark, Physicist/Cosmologist<sup>12</sup>
  - c. Romans 1:22 Professing themselves to be wise, they became fools,

<sup>7</sup>*The Cosmic Landscape: String Theory and the Illusion of Intelligent Design* by Leonard Susskind, 2008

<sup>8</sup>*Science and Ultimate Reality: Quantum Theory, Cosmology, and Complexity*, 1st Ed, 2004

<sup>9</sup>*Parallel Worlds: A Journey Through Creation, Higher Dimensions, and the Future of the Cosmos*, by Michio Kaku, 20XX

<sup>10</sup>*The Grand Design*, by Stephen Hawking, 2010

<sup>11</sup>*New Scientist*, Cover story "Ultimate Guide to the Multiverse," 26 November 2011

<sup>12</sup>*Our Mathematical Universe: My Quest for the Ultimate Nature of Reality*, by Max Tegmark, 2014

- d. II Timothy 3:7 Ever learning, and never able to come to the knowledge of the truth.
- c. Cosmic Evolution Conclusion
  - i. You are welcome to believe in whatever you want, but I don't have enough faith to believe in cosmic evolution.
  - ii. SO where did this universe come from? Where did all of the matter come from? Where did all of the order come from? Where did the fine-tuning come from? I have a theory about that...
    - 1. Genesis 1:1 In the Beginning God created the heaven and the earth...it is no more complicated than that.

V. THE SECOND PILLAR – ORGANIC EVOLUTION

- a. We've already shown how when a person removes God from the picture you cannot provide a reasonable explanation for how matter got here in the first place. As you know that's just the first step. It's not just enough to have life-less matter...somehow that stuff must come alive.
- b. Biology Bootcamp:
  - i. What makes something alive?
    - 1. Able to reproduce
    - 2. Able to grow and maintain itself
    - 3. Able to extract energy from its surroundings
    - 4. Able to sense and respond to surroundings
    - 5. **DNA (information)**
  - ii. What is DNA?
  - iii. DNA stands for deoxyribonucleic acid
    - 1. Whoa that sounds complicated, but really, it's just like a paper doll.
    - 2. ILLUSTRATION: Paper doll chain...letters instead of dolls...
  - iv. Four letters: ATCG
    - 1. Adenine, Thymine, Cytosine, Guanine
    - 2. String them together and you have DNA
    - 3. VERY long chains millions of letters long.
    - 4. The list of all of the letters that make up our DNA is called our genome
  - v. The Human Genome
    - 1. 3.5 billion letters long
    - 2. Divided up into 20,441 genes...for now this is just a specific region of the chain that performs some function
    - 3. These 20K genes are all on a single chain of DNA, but they are divided into ~23 different chains DNA...which we call chromosomes
    - 4. Bible compared to genome: (interestingly the human genome is almost exactly 1000X the size of the English Bible, that gives you some idea as the size of your genome)

<b>3,566,480 (3.5 million) letters</b>	<b>3,547,762,741 (3.5 billion) letters</b>
<b>31,101 verses</b>	<b>20,441 genes</b>
<b>66 books</b>	<b>23 chromosomes</b>
<b>1 Bible</b>	<b>1 genome</b>

- vi. It would take a fast typist (80 wpm) 6,038 days or 16.5 years to copy the human genome...
  - 1. ...a cell does it in about 8 hours.
- vii. So where is all of this DNA...
  - 1. Skin cells, heart cells, brain cells, stomach cells.
  - 2. All of this DNA is squished into an area about 6 micrometers (6 millionths of a meter) across
  - 3. All of the DNA in a human body together would stretch 30 billion miles.
    - a. To the sun and back 160 times!

c. WHAT IN THE WORLD IS ALL OF THIS DNA DOING?

i. NOTHING! That's right, DNA doesn't do anything...

ii. DNA is a code:

1. Think of it like computer code...
2. My name in computer code is **01001010 (J) 01101111 (O) 01100101 (E) 01101100 (L)**
3. The code doesn't actually do anything, it just instructs the hardware to do certain things.
4. Similarly, DNA is a code (software) that contains the instructions to make something. What does this code make?

iii. THE CORE CONCEPT BEHIND ALL BIOLOGY: DNA (genes) → Proteins

1. Genes (DNA) contain instructions to make proteins.
2. Now when you hear the word "protein", you might think, oh yeah, that's the stuff you drink in a shake so you can look like Arnold Schwarzenegger. Ummm...sort of...
3. Proteins are tiny molecular machines that do everything in the body...some proteins digest food, some proteins transport oxygen, some proteins, generate energy for the body, and, yes, proteins are very important in building and contracting muscles.
  - a. Muscles are big cells in the human body and they are just packed full of proteins such as actin, myosin, and titin (the biggest protein in the human body), so in order to make lots of muscle, you need lots of protein.
4. REPEAT: Genes (DNA) contain instructions to make proteins.
  - a. Gene X makes Protein X, Gene Y makes Protein Y, etc.
  - b. Proteins are not made out of the same letters that make up DNA, rather, proteins are made up of 20 different letters or amino acids.

~~5. EXAMPLE: Lactose intolerance...~~

~~a. In order to digest the sugar lactose properly (which is found in dairy products), you need the lactase protein, in order to~~

~~b. Normally: Lactase Gene → Lactase Protein → Digests lactose~~

6. EXAMPLE: Hemoglobin β Gene → Hemoglobin β Protein

a. Hemoglobin β Gene →

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ATGGTGCATCTGACTCCTGAGGAGAAGTCTGCCGTTACTGCCCTGTGGGGCAAGGTG
AACGTGGATGAAGTTGGTGGTGAAGCCCTGGGCAGGCTGCTGGTGGTCTACCCTTGG
ACCCAGAGGTTCTTTGAGTCCTTTGGGGATCTGTCCACTCCTGATGCTGTTATGGGCAA
CCCTAAGGTGAAGGCTCATGGCAAGAAAGTGCTCGGTGCCTTTAGTGATGGCCTGGCT
CACCTGGACAACCTCAAGGGCACCTTTGCCACACTGAGTGAGCTGCACTGTGACAAGC
TGCACGTGGATCCTGAGAACTCAGGCTCCTGGGCAACGTGCTGGTCTGTGTGCTGGC
CCATCACTTTGGCAAAGAATTCACCCACCAGTGCAGGCTGCCTATCAGAAAGTGGTG
GCTGGTGTGGCTAATGCCCTGGCCCAAGTATCACTAA
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b. Hemoglobin β Protein →

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MVHLTPEEKSAVTALWGKVVNDEVGGEALGRLLVVYPWTQRFFESFGDLSTPDAVMGN
PKVKAHGKKVLGAFSDGLAHLNLIKGTAFATLSELHCDKLHVDPENFRLLGNVLCVLAHHF
GKEFTPPVQAAYQKVVAGVANALAHKYH
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iv. Multiply this by 20,000 and you have...YOU

1. Your genes and the proteins they make you who you are physically speaking. They determine your hair color, they determine if you have hair, your height, your eye color, your tasting ability, really all of your physical features.
- ~~2. If you were to compare the genome from any two people, they would be nearly perfect matches. However, there will be minor differences, one letter difference here and there. These small differences are what make us all unique, and this is why by looking at these~~

differences you can predict things like who your relatives are, how susceptible you are to certain diseases.

3. This really is an amazing age we live in...the genomic age,

d. TRANSITION:

- i. I don't know about you, but when I look at all of this complexity, when I look at all of this information, I think: "I will praise thee; for I am fearfully and wonderfully made: marvelous are thy works and that my soul knoweth right well." Psalm 139:14
- ii. Now if you are stuck with a worldview that says NO GOD ALLOWED, then you have a lot of explaining to do.

e. Organic Evolution:

- i. **"Life on Earth first bloomed around 3.7 billion years ago, when chemical compounds in a 'primordial soup' somehow sparked into life, scientists suspect."**<sup>13</sup>
- ii. **"The first living cells emerged between 4 billion and 3.8 billion years ago. There is no record of the event."** same text book...**"The first self-replicating systems must have emerged in this organic soup."**<sup>14</sup>
- iii. This is what we mean by organic evolution:
  1. That word organic is perhaps a bit confusing. It doesn't mean that like the first life-forms didn't use deodorant or something like that. In science, the term organic is a fancy way of referring to life.
  2. Another term that you hear to describe this hypothetical event is "spontaneous generation"
- iv. This idea of spontaneous generation is actually nothing new, in the dark ages people believed that life could spontaneously arise from non-life, rats were thought to spontaneously form in piles of trash or maggots on rotting meat.
  1. Perhaps this was understandable, because only a couple of hundred years ago we thought life was relatively simple.
  2. In fact, the first microscope was invented in 1590. In 1655, a scientist named Robert Hooke used a rudimentary microscope to describe the first plant cells. He even coined the term "cell" because of the boxy shapes he saw under his microscope.
  3. However, even by Darwin's day, DNA was completely unknown and cells were believed to be simple blobs of protoplasm.
- v. We now know...(The Law of Biogenesis)
  1. ...that even the "simplest" cells are incredibly complex.
  2. ...that rats only come from rats
  3. ...that flies only come from flies
  4. ... that life only comes from life.
  5. We call this the "Law of Biogenesis"
    - a. "It can't possibly be a law, if by 'law' you mean an unbreakable rule...We know that there was no biological life on earth at some point in the past, and now there *is* biological life" (a face-less name on the internet) Jon Jermey, long-term atheist <https://www.quora.com/Is-The-Law-of-Biogenesis-really-a-Law-or-just-a-Hypothesis>

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<sup>13</sup>Moskowitz, Clara. 2012 "How Earth's Primordial Soup Came to Life" <http://www.livescience.com/18565-life-building-blocks-chemical-evolution.html>

<sup>14</sup>*Biology, The Unity and diversity of Life*, Wadsworth, 1992, p. 301.





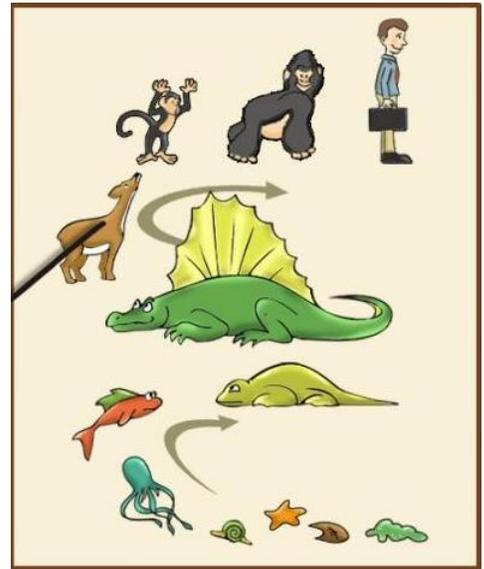
5. "...the macromolecule-to-cell transition is a jump of fantastic dimensions, which lies beyond the range of testable hypothesis. In this area all is conjecture. The available facts do not provide a basis for postulating that cells arose on this planet. This is not to say that some paraphysical forces were at work. We simply wish to point out the fact that there is no scientific evidence." David E. Green and Robert F. Goldberger<sup>17</sup>

f. Organic Evolution Conclusion

- i. You're welcome to believe whatever you would like, but I don't have enough faith to believe in organic evolution.
- ii. SO where did life come from? Where did all of this information come from? Well, I have a theory about that.
  - 1. Genesis 1:1 In the Beginning God created the heaven and the earth...it is no more complicated than that.

VI. THE THIRD PILLAR – DARWINIAN EVOLUTION

a. We've already shown how when a person removes God from the picture you cannot provide a reasonable explanation for how stuff got here in the first place. If you remove God from the picture, you also cannot provide a reasonable explanation for how that stuff came to life. But even if all of this were possible, it's not just enough to have a simple primordial cell...somehow that cell has to become you. Not just you, but it has to become: hummingbirds, and tarantulas, and killer whales, and garden snails, and frogs, and dogs, and koala bears. The third pillar of the theory of evolution which attempts to explain this transition from goo to you is called Darwinian Evolution.



- i. This is the what we typically think of when we talk about Evolution
  - 1. "This is your ancestor"<sup>18</sup> 2004 Discover Magazine...

BY JACK MCCLINTOCK PHOTOGRAPHY BY RICHARD BARNES

## THIS IS YOUR ANCESTOR

**D**RAW A LINE BACK THROUGH TIME from today's person, panda, porpoise, pelican, or perch and it ought to end with their earliest progenitor. In the mists of the ancient past, a single organism must have given rise to us all. But that raises an interesting question: Where did this animal come from? What did it look like? And what are its nearest living relatives?

To understand what the first animals looked like, Mitchell Sogin, an evolutionary microbiologist at the Marine Biological Laboratory in Woods Hole, Massachusetts, used advanced automated DNA technology and computing power to trace the molecular evolution of dozens of today's oldest known species—jellyfish, sea anemones, sponges, mollusks, starfish—back to their common point of origin. When he grouped the species in the precise order of their appearance on Earth, from less complex to more complex, he landed on sponges.

Even Sogin was taken aback. "Sponges didn't seem like animals—they didn't go seeking prey, didn't have 4 legs—or 10 legs. Show Joe Blow a sponge and it looks like cauliflower. But it's not, it's an animal!"

Not bad for a Chicago kid who "never expected to become a scientist" and in fact had "no driving career ambitions" when he went to school. Now, sitting in his cluttered Woods Hole office, the soft-spoken biologist says, "It seems to be the big questions that appeal to me." He opened his lab in 1989 with 5 people (now 10) and eight years later founded the Josephine Bay Paul Center for Comparative Molecular Biology, which he directs. Both are funded by the National Institutes of Health, the National Science Foundation, and NASA. He gazes out the window at icy Ed Pond and Buzzard's Bay beyond it, then throws a wistful glance at a photo of Woods Hole in summer, when he sails his wife's 41-foot Beneteau sloop, *Origins*.

Sogin and his colleagues are examining basic questions not only in linear molecular evolution but also in molecular ecology, molecular biodiversity, the evolution of genomes, and parasitology. Questions posed decades ago by Carl Woese, his mentor at the University of Illinois, and other scientists—such as how the essential unit of life, the cell, came into being—are still unanswered. Sogin says, "I'm obsessed with finding our origins—where we come

When microbiologist Mitchell Sogin decided to trace human evolution to its roots, he had no idea he might find sponges

b. High school biology textbook: "You are an animal and share a common heritage with earthworms."<sup>19</sup>

<sup>17</sup>David E. Green and Robert F. Goldberger, *Molecular Insights into the living Process* (New York: Academic Press, 1967), p. 406

<sup>18</sup>Discover, November, 2004 p. 64

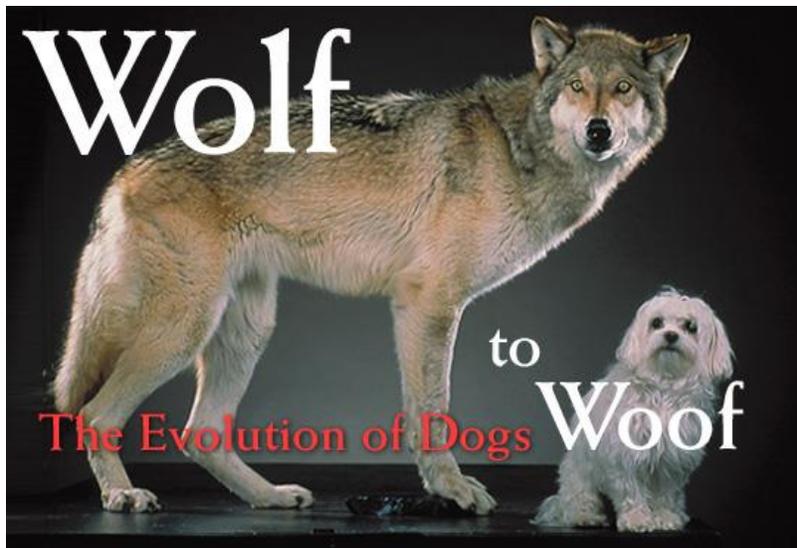
<sup>19</sup>Biology: Visualizing Life, Holt, 1994

c. Newspaper Article: "Before we were apes, we were rats."



d. Evolution Bootcamp:

- i. What do you mean by Evolution? At the beginning of Part I we posed this question and I said this is the key to dealing with this question of Evolution. This is especially true when we're talking about Darwinian Evolution. Let me show you why...
- ii. What does the word "evolution" mean?
  1. Change over time...
  2. Do things change over time? YES!
    - a. Boxers did not exist 200 years ago.
      - i. The official boxer breed was started in Munich, Germany in 1896.
    - b. Go back 2000 years ago and you would find almost none of current breeds of dogs running around.
    - c. Where did they all come from?
      - i. Now it's common knowledge that you can start with a pair of wild wolves and given enough time and enough patience you could breed and eventually select all of the different dog breeds we see today.
      - ii. But they would be different from the wolves that you started with.
    - d. What do you call this change?
      - i. National Geographic<sup>20</sup>



- e. Two types of change?
  - i. BIG CHANGE and LITTLE CHANGE
  - ii. KEEP THIS IN MIND

<sup>20</sup>[http://ngm.nationalgeographic.com/ngm/data/2002/01/01/html/ft\\_20020101.1.html](http://ngm.nationalgeographic.com/ngm/data/2002/01/01/html/ft_20020101.1.html)

iii. Charles Darwin and The Origin of Species

1. Voyage of the HMS Beagle (1831-1836): 22 years old

iv. The *Origin of Species* (1859)

1. The title here sums it up pretty good, Darwin was writing about how different species came about.

2. What is a species?

- a. Scientists like to group things.

- b. Horse example:

- i. Domain *Eukarya*

- ii. Kingdom *Animalia*

- iii. Phylum *Chordata*

- iv. Class *Mammalia*

- v. Order *Perissodactyla*

- vi. Family *Equidae*

- vii. Genus *Equus*

- viii. Species *ferus*

- c. Seven horse species:

- i. *E. africanus*—African wild ass

- ii. *E. ferus*—wild horse

- iii. *E. grevyi*—Grévy's zebra

- iv. *E. hemionus*—onager

- v. *E. kiang*—kiang

- vi. *E. quagga*—plains zebra

- vii. *E. zebra*—mountain zebra

- d. Where did these seven species of horses come from?

- i. Genesis 1:21 And God created great whales, and every living creature that moveth, which the waters brought forth abundantly, after their kind, and every winged fowl after his kind: and God saw that it was good.

- ii. Genesis 1:24 And God said, Let the earth bring forth the living creature after his kind, cattle, and creeping thing, and beast of the earth after his kind:...

- iii. Genesis 1:25 And God made the beast of the earth after his kind, and cattle after their kind, and every thing that creepeth upon the earth after his kind: and God saw that it was good.

- e. The Bible doesn't use the word species, but simply says that God created animals to bring after their kind.

- f. Horse kind:

Male	Female	Outcome
Horse	Donkey	Hinny
Donkey	Horse	Mule
Zebra	Horse	Zorse
Horse	Zebra	Hebra
Zebra	Donkey	Zonkey
Donkey	Zebra	Donkra

- g. Cat kind:

- i. Male lion X female tiger = Liger...these were probably part of the same original cat kind.

- h. How do you tell what the created "kinds" were?

- i. We don't know...but in general, trust your intuition.
    - ii. Ask any 5 year old, I have a dog, a wolf, a coyote, and a banana. Which one is not like the others?
  - i. So, from a biblical perspective, I would say that God created different kinds of animals and he designed within those animals the ability to undergo small changes to adapt to their environment giving us the large variety of species that we see today.
- 3. This is exactly what Darwin argued for in the Origin of Species...
  - a. Darwin's finches (14 species)...LITTLE CHANGE
  - b. "In regard to ducks and rabbits...I do not doubt that they all have descended from the common wild duck and rabbit." LITTLE CHANGE
  - c. **Then he made a leap of faith...**"Therefore I should infer from analogy that probably all the organic beings which have ever lived on this earth have descended from some one primordial form," BIG CHANGE
- v. Two types of change:

Little Change	Big Change
Variation within a kind	Theory of Common Descent
Wolves to Dogs	Bacteria to Blue Whales
Scientific (Observable)	Unscientific (Never observed)

- vi. When someone says, we observe evolution happening all around us...they are always referring to the small change.
  - 1. Peppered moths blending into bark on trees – LITTLE CHANGE
  - 2. Bacterial resistance to antibiotics – LITTLE CHANGE

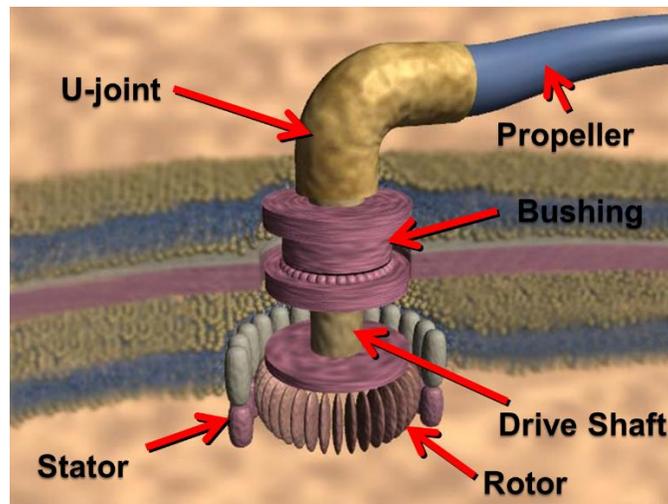


- e. The Big Problems with Darwinian Evolution:
  - i. This is a huge topic:
    - 1. Apemen
    - 2. Missing links
    - 3. The fossil record
    - 4. Vestigial organs
    - 5. Similarities in DNA
  - ii. It all boils down to one overarching problem...INFORMATION
    - 1. This is the same problem that we had back with organic evolution (the formation of life from non-living matter)
    - 2. What's the difference between bacteria and a blue whale...INFORMATION.
    - 3. What's the difference between goo and you...INFORMATION.
    - 4. Each new complex structure requires the addition of new information.
      - a. Prokaryotic to Eukaryotic
      - b. Egg laying to live birth
      - c. Feathers
      - d. Complex structures:
        - i. Hummingbird flight

- ii. Bat echolocation
- iii. Blood clotting
- iv. The eye
- v. Photosynthesis
- vi. And...

iii. The Bacterial Flagellum

1. spins up to 100,000 rpm
2. a fast bacterium can swim 50 times its body length in 1 second
3. some scientists believe this is the most efficient machine known.
4. **nearly 40 proteins required to build a functional flagellum!**
  - a. **If you remove just one of these proteins the flagellum will cease to operate. All of them had to be there at the same time. How do you evolve a**



5. "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." Charles Darwin, *Origin of Species*

f. Organic Evolution Conclusion

- i. You're welcome to believe whatever you would like, but I don't have enough faith to believe in organic evolution.
- ii. SO, where did all of this information come from? Where did frogs and dogs, and tree and bees, birds and bugs. Well, I have a theory about that.
  1. Genesis 1:1 In the Beginning God created the heaven and the earth...it is no more complicated than that.
  2. Genesis 1:27 So God created man in his own image, in the image of God created he him; male and female created he them.

VII. Conclusion

a. Part III – On Purpose or By Accident

i. Concluding thoughts...

- b. Psalm 95:3-6 For the LORD is a great God, and a great King above all gods. In his hands are the deep places of the earth: the strength of the hills is his also. The sea is his and he made it: and his hands formed the dry land. O come, let us worship and bow down: let us kneel before the LORD our maker.

<https://www.nytimes.com/2019/05/31/opinion/sunday/life-after-death.html>