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Creation Tours: Part 2

By Dan Reynolds, PhD

Introduction

This month we will continue our tour of the North Carolina Museum of Natural Sciences (NCMNS)¹ given from a biblical creation perspective. TASC and Reasons2Believe,² an apologetics organization headed by Ben LaCorte, have joined forces to present Creation Tours. Creation Tours was created to provide a biblical alternative to the secular evolutionary and materialistic understanding of nature, primarily for Christian homeschool and private school groups. The tour usually covers nine stations in the museum, each station taking ten to fifteen minutes. Each station is explained from both biblical and scientific perspectives. We have several scientists and engineers on our faculty. In the May article, we covered the first half of the tour including (alleged) whale evolution, butterfly metamorphosis, animal migration, biodiversity, and dinosaurs.³ This month we will take the second half of the tour which includes alleged transitional forms (fossils), dating methods, cosmology, and abiogenesis.

Station 6: Transitional Forms

The next stop on the tour is transitional forms (Fig. 1). As mentioned previously in the discussion about whales—see the May article, evolutionists seek fossil evidence for macroevolution. Darwin, realizing that the scores of intermediate forms (transitional forms) that his theory predicted were lacking, assumed future geologists would uncover a vast number of “missing links.” However, this prediction has not been realized. Instead, the fossil record is characterized by sudden appearance, stasis, and extinction—not the gradual, smooth, and seamless innovation hoped for.

One hopeful candidate for intermediate status was Archaeopteryx (Fig. 2). Archaeopteryx was once thought by evolutionists to be an intermediate between reptiles and



Figure 1: Engineer Paul Harry discusses transitional forms in front of the Archaeopteryx exhibit.

birds, but now they consider it to be the earliest bird, presumably a descendant of dinosaurs.⁴ Archaeopteryx had wings and feathers, a lizard-like tail, reptilian teeth, and claws on the wings. The feathers' structure was similar to that of modern birds. These fossils have been found in late Jurassic limestone considered by evolutionists to be 150 million years old.

The presumed evolutionary ancestry of Archaeopteryx is controversial. There are two schools of thought: “ground up” and “trees down.” The “ground up” school says that the ancestors of Archaeopteryx were two-legged reptiles that ran on the ground and used claws to catch prey. These animals appear *after* Archaeopteryx in the fossil record. The “trees down” school believes the ancestors were four-legged reptiles that jumped from tree to tree. These animals appear *before* Archaeopteryx in the fossil record.

The “ground up” school was derived from cladistics. Cladistics is a system of classification of organisms based on

¹ See <https://naturalsciences.org/> for an overview of the North Carolina Museum of Natural Sciences.

² See Reasons2believe.org for an overview of Reasons 2 Believe.

³ Reynolds D (2023) Creation Tours: Part 1. <https://tasc-creationscience.org/sites/default/files/media/file/2023/2023-05.pdf> Accessed 2023 May 15

⁴ Wells J (2000) *Icons of Evolution*, Regnery, Washington, DC



Figure 2: Archaeopteryx fossil (NCMNS)

presumed ancestor/descendant relationships inferred from homologies (similar structures in different organisms). Each group includes a common ancestor and all its descendants. The order of appearance of fossils in the fossil record is a secondary consideration in determining ancestry. Cladistics leads to the conclusion that the ancestors of Archaeopteryx were two-legged dinosaurs. Cladistics makes evidence fit theory instead of making theory fit evidence; thus, Archaeopteryx is found in the fossil record before its presumed ancestors. Cladistics has made the “incompleteness” of the fossil record even worse. Cladistic analysis says Archaeopteryx is a feathered dinosaur.

Archaeopteryx is a mosaic organism; none of its structures are intermediate between other species. Hence, if Archaeopteryx is a “missing link,” the identities of its ancestors and descendants are uncertain. So new “intermediate forms” have been sought.

In a 1999 *National Geographic* article entitled “Feathers for T. Rex?,” a new alleged link between dinosaurs and birds was reported: Archaeoraptor.⁵ Archaeoraptor had the forelimbs of a primitive bird and the tail of a dinosaur. Sadly, Archaeoraptor turned out to be a fake; the tail had been glued on. Even if Archaeoraptor as presented had been true, its fossils appear after Archaeopteryx, its alleged descendent.

Another “link” candidate, Bambiraptor, was chicken-sized and had a long tail, sharp teeth, and claws. The fossil of Bambiraptor was found in layers seventy-five million

years younger (according to conventional dating) than Archaeopteryx, its alleged descendant according to cladistics. Bambiraptor was portrayed as having feathers at the April 2000 Florida Symposium on Dinosaur Bird Evolution. No evidence of feathers has ever been found with the fossils.

In the issue of *Nature* on February 14, 2002 (volume 415, page 780) was an original report of yet another missing link contender named *Sinovenator changii*. According to Peter Makovicky, one of the coauthors of the report:

This new dinosaur, which was probably feathered, is closely related to and almost the same age as the oldest known bird, Archaeopteryx.⁶

The lack of feathers was attributed to the animal having been buried in wet sediments. Nevertheless, a drawing of Sinovenator, found on the web, was complete with feathers. Sinovenator is alleged to have evolved in another line parallel to Archaeopteryx, with both species presumably sharing a common dinosaur ancestor.

In summary, Archaeopteryx has a mosaic body and is not intermediate in structure between any species. Most scientists now agree Archaeopteryx was a true bird and not ancestral to birds. Cladistic analysis says Archaeopteryx is a descendant of extinct bird-like dinosaurs found after Archaeopteryx in the fossil record. Earlier fossils are dissimilar to Archaeopteryx and hence are not considered ancestral to it. Archaeoraptor, an alleged intermediate between dinosaurs and birds, was a fake. Bambiraptor, also an alleged intermediate, does not show fossil evidence of feathers and occurs in the fossil record after Archaeopteryx, its alleged descendant. Sinovenator and Archaeopteryx presumably evolved from a common ancestor along parallel lines. But the lack of feathers with the fossils of Sinovenator make the argument speculative at best. As in the case of the whale, the fossil evidence for the evolution of birds from dinosaurs is in the eye of the beholder.

Clearly, there is no real evidence that birds come from dinosaurs or that Archaeopteryx is a “missing link.” Building on the unproven assumption that macroevolution is true, scientists have attempted to make fact fit theory instead of theory fit fact. This kind of thinking does damage to science because it assumes as true the very process in question.

⁵ Sloan CP (1999) Feathers for T. rex? New birdlike fossils are missing links in dinosaur evolution. *National Geographic* 196(5):97–107.

⁶ CBC News (2002 Feb 14) New fossil shows dinosaur-bird link. <https://www.cbc.ca/news/science/new-fossil-shows-dinosaur-bird-link-1.311128> Accessed 2023 May 15

Station 7: Dating Methods

The next stop on our tour is dating methods (Fig. 3). The main method used by secular geologists to establish “absolute” ages is radiometric dating. By using these methods, secular scientists believe they have demonstrated that the Earth is 4.6 billion years old and that the fossil record is roughly six hundred million years old. Radiometric dating relies on the steady decay of unstable isotopes of radioactive elements. A radioactive element, referred to as the *parent*, decays into *daughter* elements at a rate characteristic of that parent isotope. Assuming constant decay rates, igneous rocks containing radioactive elements can presumably be dated by determining the amounts of parent and daughter elements in the sample. For this approach to provide accurate dates, three criteria must be met: (1) no parent or daughter elements can have been added or removed from the rock since the time of its formation except through the decay process—the rock has remained a closed system, (2) the amount of the daughter element at the time of the rock’s formation can be



Figure 3: The Dating Methods Exhibit (NCMNS)

determined, and (3) the decay rate of the parent has been constant over time. Although there is no way to be certain if the first two criteria have been met for a given rock, scientists have developed what is called the *isochron method* which can theoretically show the initial amount of the daughter element and whether a rock has remained a closed system. If the analysis of the parent and daughter elements in a rock does not produce an isochron, then the first two criteria have not been met and the rock is not used for dating. But even if the radioactive elements in a rock produce isochrons, there can still be problems. For instance, isochrons can be the result of the mixing of magmas instead of radiometric decay, producing what has been termed *fictitious* or *pseudo* isochrons. In addition, it is known that for a given rock, different radioactive elements, all of which give good isochrons, can nevertheless also give different “dates.”^{7,8} In addition, there are rocks of known age (e.g., rocks formed from a well-documented volcano) that give incorrect ages when dated by radiometric methods.⁹

Over the last two decades, the constancy of the rate of decay of some radioactive elements has been brought into question through research by creationists on the RATE team.¹⁰ Uranium-238, a radioactive element used for radiometric dating, decays into lead-206 and is often found in a crystalline mineral called zircon. One of the by-products of the decay of uranium is the gas helium. RATE determined the helium leak ages of zircons. RATE found that although the uranium/lead method indicated an age of 1.5 billion years, the helium leak rate age was roughly six thousand years. These results implied that the rate of decay of uranium into lead had been accelerated in the past. That would explain why the amount of helium in the zircons was much higher than expected: there has not been enough time for the helium to leak out of the zircons

⁷ Austin SA (2005 Nov 01) Do radioisotope clocks need repair? Testing the assumptions of isochron dating using K-Ar, Rb-Sr, Sm-Nd, and Pb-Pb isotopes. *RATE II: Radioisotopes and the Age of The Earth: Results of a Young-Earth Creationist Research Initiative, (Volume II)*, L. Vardiman et al., eds., Institute for Creation Research and the Creation Research Society, San Diego, CA.

<https://www.icr.org/i/pdf/technical/Do-Radioisotope-Clocks-Need-Repair.pdf> Accessed 2023 May 15

⁸ Snelling AA (2005 Nov 01) Isochron discordances and the role of inheritance and mixing of radioisotopes in the mantle and crust. *RATE II: Radioisotopes and the Age of The Earth: Results of a Young-Earth Creationist Research Initiative, (Volume II)*, L. Vardiman et al., eds. (Institute for Creation Research and the Creation Research Society, San Diego, CA.

<https://www.icr.org/article/isochron-discordances-role-inheritance/> Accessed 2023 May 15

⁹ Austin SA (1996) Excess argon within mineral concentrates from the new dacite lava dome at Mount St. Helens volcano. *Creation Ex Nihilo Tech J* 10(3):335–343. <https://www.icr.org/article/argon-mount-st-helens/> Accessed 2023 May 15

¹⁰ Humphreys DR (2005 Nov 01) Young helium diffusion age of zircons supports accelerated nuclear decay. *RATE II: Radioisotopes and the Age of The Earth: Results of a Young-Earth Creationist Research Initiative, (Volume II)*, L. Vardiman et al., eds., Institute for Creation Research and the Creation Research Society, San Diego, CA. <https://www.icr.org/article/young-helium-diffusion-age-zircons/> Accessed 2023 May 15

because the zircons are only thousands, and not billions, of years old.

Perhaps the most important finding in this area has been the detection of trace radiocarbon (C-14) in fossils spanning the entire fossil record (Cambrian to present) and in diamonds, the hardest known natural substance.¹¹ As mentioned before when discussing dinosaurs, any object more than 100 thousand years old should not have any detectable radiocarbon. The ubiquity of radiocarbon in fossils suggests a recent burial of the fossil organisms at roughly the same time, consistent with Noah's Flood. Diamonds, which consist of pure carbon, are presumably made from graphite under high temperature and pressure in the Earth's mantle, then brought rapidly to the surface volcanically through kimberlite pipes. Diamonds are thought to be at least hundreds of millions if not billions of years old. The discovery of radiocarbon in diamonds suggests they were formed thousands, not millions, of years ago.

The radiocarbon in fossils finding has another implication. Igneous rock is found intruding into sedimentary rock in many places in the geologic record in the form of dykes and sills. Clearly, the sedimentary rock was in place before the magma intruded it. Hence the sedimentary rock must be older than the intrusive igneous rock. The discovery of radiocarbon in fossils limits the age of the entire fossil record (from the Cambrian to the present) to thousands of years, so the igneous intrusions must also be, at most, thousands of years old. Yet using the uranium/lead dating method on some intrusive igneous rocks says the rocks are hundreds of millions of years old. Since the age of the intrusive rocks is limited to thousands of years of age, the uranium/lead results may indicate there was accelerated nuclear decay occurring during the Flood when the fossil record was forming.

Station 8: Cosmology

The next stop on our tour is cosmology (Fig. 4). The facts and laws of physics, especially in cosmology, are best explained by intelligent design.¹² The available evidence and best theories suggest the universe had a beginning and therefore a cause outside of itself. The laws of physics and chemistry are fine-tuned for life as we know it. There are

no known natural laws that account for the creation of the universe from nothing with all the required properties for the existence of intelligent beings. Indeed, the idea that nature created itself is self-contradictory. Speculative naturalistic explanations involving a multiverse have no empirical support. The one known cause that can account for the origin of the universe from nothing and the fine-tuning of physics is a powerful intelligence.

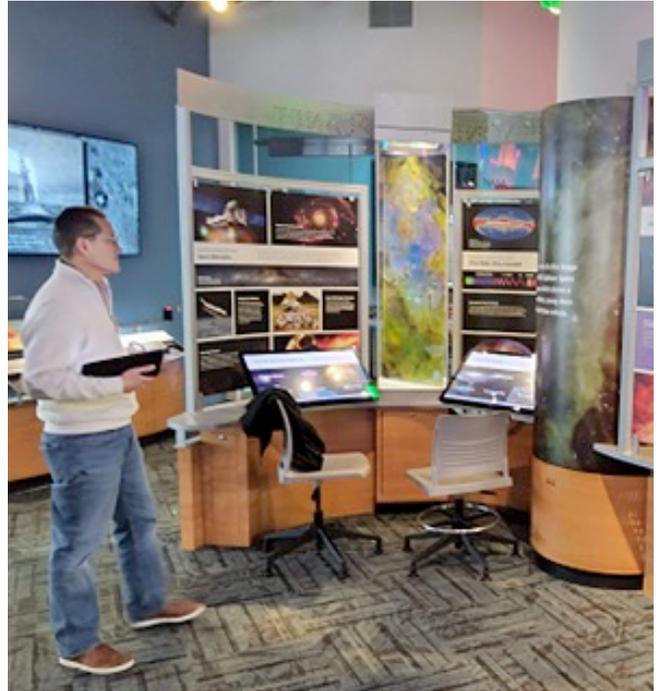


Figure 4: Engineer Paul Harry at the Cosmology Exhibit (NCMNS)

The origin of the universe is a scientific mystery. Throughout history, there have been those who believed the universe has always existed and those who believed it had a beginning. An eternal universe of some sort is required by naturalism or materialism, the philosophy that nature is all there is or ever has been. However, the available evidence and known laws of science strongly suggest the universe had a beginning.¹³

First, the second law of thermodynamics requires a beginning. The second law of thermodynamics—also known as the law of entropy—says that the total amount of energy

¹¹ Baumgardner JR (Carbon-14 evidence for a recent global flood and a young Earth. *RATE II: Radioisotopes and the Age of The Earth: Results of a Young-Earth Creationist Research Initiative, (Volume II)*, L. Vardiman et al., eds., Institute for Creation Research and the Creation Research Society, San Diego, CA. <https://www.icr.org/article/carbon-14-evidence-for-recent-global/> Accessed 2023 May 15

¹² Meyer SC (2021) *Return of the God Hypothesis*, HarperOne, New York. Meyer gives an up-to-date discussion on the evidence for the beginning of the universe and other evidence for intelligent design. For a summary of the book see <https://tasc-creation-science.org/search?keys=return+of+the+god+hypothesis> Accessed 2023 May 15

¹³ Lennox JC (2009) *God's Undertaker: Has Science Buried God?*, Lion Hudson, Oxford, 66–67

available to do work in the universe is irreversibly decreasing with time. Hence a universe that had existed for an infinite amount of time would no longer contain any useful energy. Since our universe still has useful energy (the stars shine, plants use light to manufacture molecules for life, etc.), it must have been in existence for a finite period or, in other words, had a beginning.

Edwin Hubble discovered that most galaxies are moving away from us, and the farther away, the faster the recession: the universe is expanding. Run the expansion in reverse (back in time) and eventually all matter converges on a single point where there is infinite temperature, infinite gravity, infinite density, and an infinitesimal volume. It is at this “singularity” that our best theories break down; our current science can’t describe the singularity. Time itself stops at the singularity or in other words, the universe and time had a beginning.

Some materialists say that physical law can explain the origin of the universe. But the universe includes physical laws, particles, forces, and dimensions. Physical laws are just mathematical descriptions of the observed behavior of particles and forces in space-time. If there are no particles, forces, and space-time, where and when would physical laws operate? As Alexander Vilenkin has asked:

Does this mean that the laws are not mere descriptions of reality and can have an independent existence of their own? In the absence of space, time, and matter, what tablets could they be written upon? The laws are expressed in the form of mathematical equations. If the medium of mathematics is the mind, does this mean that mind should predate the universe?¹⁴

As it turns out, many of the laws and constants of physics are just what they must be within narrow tolerances to permit our existence.¹⁵ This fact has been referred to as the *fine tuning of physics* and is widely acknowledged by Christians and atheists alike. Change any of these laws or constants just a little, and our universe becomes uninhabitable.¹⁶ One of the amazing things about fine tuning is that there is no known physical law or principle that accounts for it.¹⁷ We just happen to have won the cosmic

lottery! For example, there are four fundamental forces: gravity, the strong force, the weak force, and electromagnetism. If gravity were much stronger, stars would burn faster and hotter,¹⁸ too hot for liquid water to exist on Earth given its current position. If gravity were much weaker, nuclear fusion in stars would be too slow and would fail to produce many chemical elements; and the sun would not shine as brightly, resulting in cold temperatures on Earth. The strong force holds quarks together in protons and neutrons. The strong force also holds protons and neutrons together in the atomic nucleus. If the strong force were much stronger, hydrogen would convert into helium much faster during nuclear fusion and stars would be short-lived.¹⁹ There would also be little hydrogen left in the universe. If the electromagnetic force were much stronger, atomic nuclei would become unstable due to charge repulsion (protons are positively charged), and only the smallest atoms would exist.

The late atheist physicist Stephen Hawking reviewed some of the evidence for the “fine tuning” of physics in our universe.²⁰ For example, we don’t have a binary star (most stars are binary),²¹ the eccentricity of Earth’s orbit is near zero (close to a circle), the sun’s mass and our distance from it put us in the “habitable zone” (not too hot or cold), the sun emits the right spectrum of light for life as we know it, and our temperature allows liquid water. The fundamental forces had to be able to create elements in stars, make stable elements, and allow for star/galaxy/solar system formation. Forces had to allow for the expansion rate of the universe to be fast enough to avoid gravitational collapse but slow enough to allow star and galaxy formation.²²

Carbon is formed in stars by the “triple alpha” reaction ($2\text{He} \rightarrow \text{Be}$, $\text{Be} + \text{He} \rightarrow \text{C}$). If the strong force were different by 0.5% or the electric force by 4%, carbon and oxygen would not form in stars. If the weak force were a little weaker, all hydrogen in the early universe would have become helium; if much stronger, supernovas would not spread the heavier elements. If protons were 0.2% heavier, they would decay into neutrons, thereby destabilizing atoms. If the sum of the masses of the quarks that make up

¹⁴ Meyer SC, 373

¹⁵ Lewis GF, Barnes LA (2016) *A Fortunate Universe: Life in a Finely Tuned Cosmos*, Cambridge University Press, Cambridge. For a summary, see <https://tasc-creation-science.org/sites/default/files/2021-03/oct2019.pdf> and <https://www.tasc-creation-science.org/sites/default/files/2021-03/nov2019.pdf> Accessed 2023 May 15

¹⁶ Lennox JC, 70

¹⁷ Berlinski D (2008) *The Devil’s Delusion: Atheism and Its Scientific Pretensions*, Crown Forum, New York, 115

¹⁸ Lewis GF, Barnes LA, 109

¹⁹ Bai TA, The universe fine-tuned for life. This article is adapted from a section of the book entitled *The Creative Universe and the Creating God* being written by the author. <http://quake.stanford.edu/~bai/finetuning.pdf>. Accessed 2023 May 15

²⁰ Hawking SW (2010) *The Grand Design*, Bantam Books, New York, 149–166

²¹ Most stars have a companion star and are hence called *binary*. Our sun is an exception.

²² Lennox JC, 71

the proton changed by 10%, there would be few stable elements. It appears that the summed quark mass is optimized to allow for the largest number of stable elements.

The number of spatial dimensions determines the nature of gravity. Stable elliptical orbits are only possible with three large spatial dimensions. If the Earth's distance from the sun were changed by as little as 2%, life would cease.²³ With more than three large spatial dimensions, electrical forces would vary such that electrons would either escape from or spiral into the nucleus. In three-dimensional space, gravity varies by $1/r^2$, where r is the distance between the two masses under the force of gravity. For a four-dimensional space, gravity would vary with $1/r^3$, in which case stars would fall apart or collapse into a black hole. Hawking summarizes:

The emergence of the complex structures capable of supporting intelligent observers seems to be very fragile. 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. Were it not for a series of startling coincidences in the precise details of physical law, it seems, humans and similar life forms would never have come into being.²⁴

So, what is a materialist to do about the beginning of the universe and the fine tuning of physics? Current thinking among materialists says that although the universe had a beginning in time, there were other types of time dimensions existing prior to the time in our universe. For instance, Stephen Hawking has said that before time was *imaginary time*.²⁵ He has said that time doesn't stop at the singularity but only changes direction or changes into another dimension. But is there any evidence for other time dimensions?

Our best theory of gravity is Einstein's theory of relativity. It is the equations of relativity that break down at the singularity.²⁶ The state of matter/energy at the beginning is thought to have been a plasma consisting of quarks, electrons, photons, and other basic particles of the quantum world. Understanding the physics of the singularity, therefore, requires insight from both quantum mechanics

and relativity or a *quantum theory of gravity*. However, currently, there is no confirmed quantum theory of gravity.

One attempt to combine quantum mechanics and relativity is string theory. String theory says the most basic fundamental particles are strings of energy of various shapes that vibrate at various frequencies; the frequency determines what particles and forces there are. One prediction made by ten-dimensional string theory—there are versions with more dimensions—is the existence of 10^{500} universes,²⁷ each with four large and six “compactified” dimensions. Each universe has its own particular set of physical laws, dimensions, and particles. In other words, each universe has a unique set of dimensions and laws of chemistry and physics. The ensemble of universes or multiverse has been referred to as the “landscape”²⁸ and dovetails with the “many worlds” interpretation of quantum mechanics.²⁹ And this is how the materialist explains fine tuning. If there are 10^{500} universes with every conceivable set of dimensions, particles, and laws, at least one of those universes had to be like ours; we did indeed win the cosmic lottery!

The major problem with this view of reality is the lack of evidence for its existence. There is no direct evidence for other universes or their spontaneous generation, for the hidden compactified dimensions suggested by string theory, or for imaginary time. There is not even a theory that allows an eternal past, even among theories that predict multiple universes.³⁰ The spontaneous generation of universes from nothing may work in some theoretical models, but without evidence, it is mere speculation and metaphysics. The origin of the physical laws that would permit the generation of a multiverse is not explained. Indeed, materialists *assume* the existence of quantum mechanics and gravity and then claim a universe can be created from nothing, yet physical law is something! The mechanism whereby quantum mechanics and gravity could generate a universe is likewise not explained. Empirically our universe is all we know of, so the problem of fine tuning remains. Hawking claims the many worlds interpretation of quantum mechanics is correct, but there are many other interpretations. For example, the Copenhagen interpretation, which does not invoke other universes, was favored by Niels Bohr,³¹ one of the fathers

²³ Lennox JC, 72

²⁴ Hawking SW, 161

²⁵ Hawking SW (1988) *A Brief History of Time: From the Big Bang to Black Holes*, Bantam Books New York, 134

²⁶ *Ibid.*, 133

²⁷ Kraus LM (2012) *A Universe from Nothing: Why There is Something Rather Than Nothing*. Free Press, New York, 134

²⁸ Berlinski D, 120

²⁹ The many-worlds interpretation of quantum mechanics was inspired by the double slit experiment. See an online video: <https://www.youtube.com/watch?v=Q1YqgPAzho&t=2s>

³⁰ Grossman L (2012 Jan 11) Why physicists can't avoid a creation event. *New Scientist* 2847:6–7, <http://www.newscientist.com/article/mg21328474.400-why-physicists-cant-avoid-a-creation-event.html>

³¹ Berlinski D, 94

of modern atomic theory. Many atheists assume Darwinism or one of its variants can answer all the questions in evolutionary biology, but this simply is not so; macroevolution is still looking for a credible mechanism. So far, the only known source of complex specified information such as that found in books and in DNA is an intelligent agent.³² Hence, even if the many worlds interpretation is correct—this is dubious in my view, the origin of information in biology would still need to be explained. Just as the “just so” stories of biological evolution have failed to explain the origin and diversity of life on Earth, the “just so” many-worlds hypothesis and multiverse theories fail to explain the origin of the universe, natural law, and the fine tuning of physics. So far there is no mechanism to start and stop inflation,³³ a critical part of the Big Bang scenario. In fact, the discovery of the Higgs boson has suggested that current inflation theories may not work.³⁴ So far there is no evidence for microscopic black holes and curled-up compactified extra dimensions predicted by M-theory³⁵ and related theories.^{36, 37} There is still no complete explanation for why there is no anti-matter in the universe. M-theory, string theory, and related theories have not been confirmed, so perhaps it is premature to say everything has been explained without God. Hawking’s explanation for the universe is more philosophy than science.

Atheist Lawrence Krauss says that the difference between speculative physics and spiritual realities is that the former can be measured in principle.³⁸ However, this ignores personal spiritual experience, the fulfillment of prophecies, the empirical detection of design in nature, the historical accuracy of the scriptures, the over five hundred

eyewitnesses to the resurrection of Christ, etc. These spiritual realities have been measured *in fact*.

Krauss, similar to Hawking, says you can get a universe from nothing if you can start with empty space with non-zero energy and the laws of gravity and quantum mechanics. He then admits empty space with non-zero energy is something!³⁹ This is a clear violation of the law of non-contradiction.

Then there is the issue of how starlight from stars billions of light years away could have reached the Earth if the Earth and universe are only six thousand years old. Creationist astronomers agree that the great distances to stars are valid. At present, the speed of light is constant and measured as 186,282 miles/s in a vacuum. Adam saw the stars on the sixth day.

Creationists have suggested several solutions to this problem:

1. cDK: The speed of light may have been faster in the past (Barry Setterfield).⁴⁰
2. Light in transit (Mature Creation): Some have suggested God placed beams of light between the stars and Earth on Day 4. If this were so, most of the images we see now would be of events that never happened (Don DeYoung).
3. Time Dilation: The theory of relativity says that clocks in different gravitational fields tick at different rates. Experiments have shown that clocks in relatively strong gravitational fields tick slower than clocks in relatively weak gravitational fields. God may have made the universe in a way that put the Earth in a relatively stronger gravitational field during creation week, making clocks tick slowly on Earth while clocks ticked much faster in the

³² Reynolds DW (2013) *The Origin of Information in Biology* http://tasc-creationscience.org/sites/default/files/news-letter_pdf/may2013.pdf Accessed 2023 May 15

³³ Inflation refers to rapid expansion of the universe fractions of a second after the Big Bang. Inflation is thought to explain the horizon problem and the homogeneity of matter in the universe. Predictions that inflation would result in polarization of the cosmic background radiation have not been realized. See Ijjas A, Steinhardt PJ, Loeb A (2017) Pop goes the universe. *Sci Am* 316(2):32–39.

³⁴ Merali Z (2013 Apr 16) Higgs data could spell trouble for leading Big Bang theory. *Nature News* doi:10.1038/nature.2013.12804. <http://www.nature.com/news/higgs-data-could-spell-trouble-for-leading-big-bang-theory-1.12804> Accessed 2023 May 15

³⁵ M-theory is favored by Stephen Hawking. It is actually a collection of theories in physics that agree where they overlap.

³⁶ These are being sought now with the Large Hadron Collider in Europe. See Extra dimensions, gravitons, and tiny black holes. See CERN <https://home.cern/science/physics/extra-dimensions-gravitons-and-tiny-black-holes> Accessed 2023 May 17

³⁷ Recent observations related to the convergence of binary neutron stars appear to rule out extra spatial dimensions predicted by string theory. See Lerner L (2018 Sep 13) Gravitational waves provide dose of reality about extra dimensions. <https://news.uchicago.edu/story/gravitational-waves-provide-dose-reality-about-extra-dimensions> Accessed 2023 May 15

³⁸ Kraus LM, 133

³⁹ Kraus LM, 149–150

⁴⁰ Setterfield B Setterfield light speed research. <https://www.barrysetterfield.org/000docs/history.htm> Accessed 2023 May 15

cosmos. Thus, while billions of years pass in the cosmos, only hours pass on Earth. (Russell Humphreys and John Hartnett).

4. Anisotropic Synchrony Convention (ASC): This view holds that the speed of light c is infinite in one direction and half c in the other. Einstein realized this possibility. In principle, no experiment can be devised to measure the one-way speed of light (Jason Lisle).⁴¹

5. Dasha solution: God accelerated the development of the universe on Day 4, so the light reached the Earth. This explanation is purely supernatural and makes no predictions (Danny Faulkner).⁴²

In summary, the second law of thermodynamics, the expansion of the universe, and the most recent scholarship on major cosmological theories all require a beginning to the universe. No current theory allows an eternity past! Hence, all current theories say there still had to be a beginning.¹⁹ Since there is no evidence so far for hidden dimensions, other universes, string theory, etc., fine tuning is still a problem for materialists. The matter/antimatter problem is still unsolved. Even if the landscape of a multiverse is correct—there is no evidence it is, one still has to explain the origin of life and evolution. The theoretical scenarios advanced by Hawking and Krauss are speculative and depend on a quantum theory of gravity, which is not currently available. The best answer to the beginning and fine tuning of our universe is found in Genesis 1:1 *In the beginning, God created the heaven and the earth.*

Station 9: Abiogenesis

The last stop on our journey is abiogenesis, the question of the origin of life (Fig. 5). The question is how did chemistry become biochemistry.⁴³ The question of abiogenesis is perhaps the greatest “Achilles heel” for materialism. Almost everyone agrees that one of the required features for something “living” is self-replication. So, the question of abiogenesis is how did the first self-replicating molecular system come into existence. The truth is no one has any idea how chemistry could have become biochemistry. Based on what we know, chemistry alone could not have produced life.⁴⁴

Even the simplest life contains a wide variety of chemicals such as lipids, carbohydrates, proteins, DNA, RNA, and



Figure 5: Engineer Ben LaCorte at the Abiogenesis Exhibit (NCMNS)

various metals all organized and integrated into a functional, self-replicating whole. The simplest cell is so complex that it is not reasonable to assume it represents the first life on Earth, so it is thought that a much simpler self-replicating molecular system must have evolved into the cell we know now.

Functional proteins are made from a combination of twenty different amino acids ordered in specific sequences, like words in a sentence. Proteins may function as enzymes carrying out the chemistry of the cell, be used to make molecular machines, or be used to build structures. Proteins can have hundreds to tens of thousands of amino acids. Functional DNA is made from the combination of four different nucleotides ordered in specific sequences. The genomes of organisms can consist of hundreds of thousands to billions of nucleotides. Experiments aimed at showing that the twenty amino acids or the four nucleotides could have formed on the early Earth have not been very successful. There are many problems including very low yields, the production of useless by-products (the majority of the products formed), the lack of control over the three-dimensional structure of the

⁴¹ *Why No One Has Measured the Speed of Light*, hosted by atheist physicist Derek Muller. See <https://www.youtube.com/watch?v=pTn6Ewhb27k> Accessed 2023 May 15

⁴² Faulkner DR (2021 Feb 23) Solving the light travel time problem. <https://answersingenesis.org/astronomy/starlight/solving-light-travel-time-problem/>.

⁴³ For a good overview on the problems with abiogenesis, see Thaxton CB, Bradley SL, Olsen RL, Tour J, Meyer, S,

Wells J, Gonzalez G, Miller B, Klinghoffer D (2020) *The Mystery of Life's Origin*, Discovery Institute, Seattle.

⁴⁴ For a recent and excellent article with links to informative and entertaining videos on abiogenesis, see Stadler, Rob. On Origin of Life, “Stated Clearly” Has Clearly Mised Viewers. <https://evolutionnews.org/2023/05/on-origin-of-life-stated-clearly-has-clearly-mised-viewers/>

molecules (critical to being useful), and the instability of the desired molecules to hydrolysis and photolysis, just to name a few. But even if the required amino acids and nucleotides could be formed exclusively in high concentrations, there are still many problems.

The sequences of amino acids or nucleotides required to produce useful biomolecules are very rare and improbable in the same way that the number of meaningful sequences of words in English is small compared to all possible sequences.⁴⁵ Experiments have shown that the undirected combinations of amino acids to form proteins or nucleotides to form DNA or RNA do not show preferences for specific sequences; the sequences form randomly. Hence, even if the needed monomers (amino acids and nucleotides) could be formed in high yield and purity, there is no known natural mechanism to cause biochemically meaningful sequences to form. The probability of forming even one specific functional modest-sized protein is vanishingly small, even granting the probabilistic resources of the entire universe. Scientists are seeking an as-yet-undiscovered physical law that can explain the origin of the required sequences despite their low probabilities. The problem is that physical laws tend to create repetitive and simple patterns. The sequences of amino acids in functional proteins are complex and *aperiodic*, that is, they are not repetitive, so it is unlikely that some physical law can account for them. And even if by some miracle a biochemically useful protein formed, it would soon be destroyed by hydrolysis, oxidation, or light.

As already mentioned, even the simplest life we know of consists of thousands of specific and complex molecules arranged in a coordinated, organized, and integrated fashion. So, in order for abiogenesis to work to form this simplest of known life forms, all those complex molecules would have to appear on the Earth at the same place at the same time and then spontaneously organize themselves into a functional cell. The probability of this happening is essentially zero.

Given this state of affairs, scientists have speculated that the first “life” was a self-replicating molecular system much simpler than a cell. The most popular version of this approach is called the RNA world hypothesis. There are RNA molecules known as ribozymes that can act as information carriers as well as chemical catalysts. Scientists speculate that life may have started out as a self-replicating ribozyme, but there are many insurmountable problems;⁴⁶ a few will be mentioned here. First, there is no known self-replicating RNA molecule from either natural

or artificial sources. Even if a self-replicating RNA could form, it would only survive a few replications before the nucleotide sequence required for replication would be lost, causing replication to cease. In extant organisms during DNA replication, the transcript (copy of DNA) is proofread by molecular machines to correct any copying errors. In the RNA world, the first self-replicating RNA molecule would not have had any proofreading molecular machines, so all copying errors would remain. This situation would result in an error catastrophe after a few replications. And even if a self-replicating RNA molecule that made only a few copying errors could form, one would then have to explain how that molecule evolved into the DNA, RNA, and protein world of today.

Scientists have been able to come up with self-replicating RNA systems (not a single molecule but several working together), but only after years of research with a team of highly trained chemists. Chemists designed the system. If this achievement proves anything, it is that it takes a *designer* to create a self-replicating chemical system. What was not shown was how the chemicals likely present on the early Earth could have spontaneously combined to form a self-replicating chemical system, which is what is required to make abiogenesis credible.

So far as we know, the Earth is the only planet where life exists. However, since many scientists believe life evolved on Earth, they also believe life must have evolved elsewhere in the universe. Astronomers are looking for exoplanets similar to Earth in hopes of finding life. Some think that planets that could have liquid water are the most likely to harbor life. But based on what we know about chemistry, probability, and biochemistry, abiogenesis is essentially impossible, even granting the most favorable conditions.

James Tour, considered one of the world’s top organic chemists has summarized the current state of research into abiogenesis:

We have no idea how the molecules that compose living systems could have been devised such that they would work in concert to fulfill biology’s functions.... Chemists are collectively bewildered. Hence, I say that no chemist understands prebiotic synthesis of the requisite building blocks, let alone assembly into a complex system. That’s how clueless we are. I have asked all of my colleagues—National Academy members, Nobel Prize winners—I sit with them in offices. Nobody understands this. *So, if your professors say it’s*

⁴⁵ Meyer SC (2004 Aug 04) The origin of biological information and the higher taxonomic categories. *Proc Biol Soc Wash* 117(2):213–239 <https://www.discovery.org/a/2177/> Accessed 2023 May 16

⁴⁶ Tan CL, Stadler R (2020) *The Stairway to Life: An Origin-of-Life Reality Check*, Evorevo Books. For a review of this book see <https://tasc-creationscience.org/sites/default/files/2021-03/jul2020.pdf> Accessed 2023 May 16

all worked out [how life began], if your teachers say it's all worked out, they don't know what they're talking about.⁴⁷

Summary

The takeaways from the tour are the following:

- **Whale evolution:** There are no transitional fossils and there has not been enough time for a terrestrial mammal to evolve into a whale.
- **Metamorphosis:** Where did the information come from to code for two organisms in one genome? What were the intermediate forms?
- **Migration:** How did the organisms learn how to do this?
- **Biodiversity:** Variation within kinds was either built-in or a result of loss of genetic information. Variation within kinds does not support macroevolution (genetic information gain).
- **Dinosaurs:** They lived recently according to legends, art, scripture, the existence of soft tissue, the existence of intact dinosaur proteins, and the detection of radiocarbon in fossils.
- **Transitional fossils:** Archaeopteryx was a mosaic creature and not intermediate between dinosaurs and birds. The fossil record does not support the idea that birds evolved from dinosaurs.
- **Dating methods:** The presence of radiocarbon throughout the fossil record is consistent with a recent global flood, showing that the fossil record is not a record of the evolution of life but a record of the order of the burial of ecosystems during the flood. The radiocarbon results and the retention of helium in zircons both support episodes of accelerated nuclear decay in the past.
- **Cosmology:** The universe had a beginning, physics is fine-tuned for life, and there is evidence for only one universe.
- **Abiogenesis:** There is no natural mechanism that can account for the information in biomolecules. There is no experimental evidence that supports the idea that undirected chemistry can produce a self-replicating chemical system.

Website and Links

If you would like more information about Creation Tours, including how your group can attend one, visit

<https://reasons2believe.org>. For a promotional video about Creation Tours, see <https://www.youtube.com/watch?v=QHTsK5bpp6g>. You can also contact Dan Reynolds at 919-827-2107 for more information. 

COMING EVENTS

TASC Zoom Meeting, June 8, 7:00 pm EDT

Dr. Jeff Gift will summarize the perspective of [Dr. Peter Line](#) regarding recent developments in paleoanthropology, the study of modern human development. Dr. Line, an anatomy and physiology professor with a PhD in neuroscience, has written a number of articles over the past couple years describing fossil finds and/or developments in paleoanthropology from a creationist perspective. Our meeting will cover recent findings from a *Homo erectus* cranium found in South Africa to a new study of fossil footprints from Laetoli Site A, Tanzania.

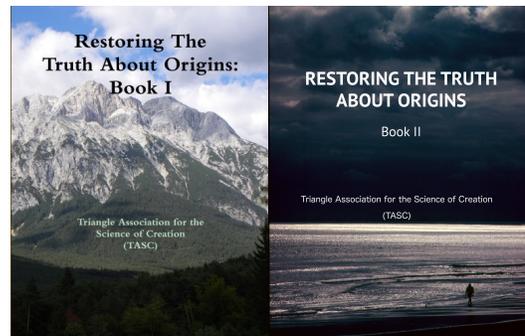
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Great gift for family, friends, associates, and especially your children

⁴⁷ Leisola M, Witt J (2018) *Heretic: One Scientist's Journey from Darwin to Design*, Discovery Institute Press, Seattle, 36–37