

INSTITUTE FOR

ICR.org

**RESEARCH EDITION** 



The Big Bang Myth page 5

**Blind Cavefish Unmask** the Convergent Evolution

page 12

Busting the Myth about Lucy page 18

Archaeopteryx, Myth of a Transitional Fossil page 19

Special Research Issue

### MYTHBUSTERS, ICR STYLE Dear reader,

This special research edition of Acts & Facts takes on some of the most prevalent evolutionary myths. These false narratives pervade and skew our culture's perspectives on science, history, faith, and many more aspects of human thought and endeavor. Evolution continues to be taught in elementary through graduate school despite its guesswork, mistakes, inaccuracies, and debunked data.

In these pages, ICR's gifted research scientists carefully and methodically break down these evolutionary myths one by one. For example, the Big Bang theory is widely accepted even though the evidence used for it is surprisingly weak. Beak changes in Darwin's Galápagos finches are diet-related adaptations, and "junk" DNA has proven to be vitally necessary for cellular function. And famous "in-between" fossils like Lucy, Archaeopteryx, and Tiktaalik aren't transitional at all, instead fitting within their respective kinds.

Biological, fossil, and other "supports" for evolution are no longer standing. Scientific explanations are often consciously or unconsciously made to fit evolutionary expectations (e.g., Lucy) or ignore disproven information (e.g., "vestigial" organs). It's becoming harder for evolutionists to cling to what they hope will verify their

The truth is that evolutionary myths are clearly counteracted by the scientific evidence, which actually aligns with the Bible's historical record. Everything that exists, including life, was intentionally designed and created whole by the Lord Jesus Christ. We hope this special Acts & Facts will leave you more equipped and empowered to hold fast to the "word of our God [that] stands forever" (Isaiah 40:8).

#### Earth Systems

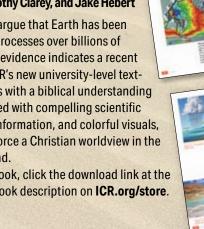
An Introduction to Earth System Origins, Structures, and Processes



#### Thomas Breuner, Timothy Clarey, and Jake Hebert

Most scientists argue that Earth has been sculpted by natural processes over billions of years. But the global evidence indicates a recent catastrophic past. ICR's new university-level textbook equips students with a biblical understanding of Earth science. Filled with compelling scientific evidence, practical information, and colorful visuals, it's designed to reinforce a Christian worldview in the classroom and beyond.

For the digital book, click the download link at the bottom of the print book description on ICR.org/store. \$72.00



ou are deeply loved by God! This certain truth is expressed in a Scripture that sums up the gospel of Jesus Christ: "For God so loved the world that He gave His only begotten Son, that whoever believes in Him should not perish but have everlasting life" (John 3:16). We all need Jesus as our Savior because we are all sinners and can't by our own efforts fulfill the requirements of God's justice. But Jesus Christ, our Creator, could satisfy the Father's holiness, so He

suffered the punishment for sin on our behalf by dying on the cross. Jesus was made to be sin for us so that—in the most remarkable exchange ever—we might receive the righteousness of God. We can be sure of this because Jesus rose again from the dead. What a gift of love! You can have the promise of everlasting life when you turn from your sin and believe in Jesus Christ as your Lord and Savior. To learn more, visit ICR.org/gospel.



VOLUME 54 NUMBER 5

**RESEARCH EDITION 2025** 

Published by INSTITUTE FOR CREATION RESEARCH

P. O. Box 59029 Dallas, TX 75229 214.615.8300 ICR.org

Acts & Facts is a free publication. For subscription information, call 800.337.0375, visit ICR.org/subscriptions, or write to ICR at the above address.

#### **DESIGNER**

Dennis Davidson

[Jesus Christ] is the image of the invisible God, the firstborn over all creation. For by Him all things were created that are in heaven and that are on earth, visible and invisible, whether thrones or dominions or principalities or powers. All things were created through Him and for Him. And He is before all things, and in Him all things consist. And He is the head of the body, the church, who is the beginning, the firstborn from the dead, that in all things He may have the preeminence. For it pleased the Father that in Him all the fullness should dwell, and by Him to reconcile all things to Himself, by Him, whether things on earth or things in heaven, having made peace through the blood of His cross. (Colossians 1:15-20)

No articles may be reprinted in whole or in part without obtaining permission from ICR.

> Copyright © 2025 Institute for Creation Research ISSN (print): 1094-8562 ISSN (online): 2833-2806

All Scripture quotations are from the New King James Version unless otherwise indicated.



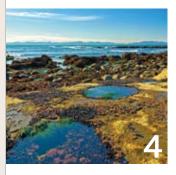




Front cover: Adult stages of Astyanax mexicanus (Mexican tetra). Top: Rascón surface fish with functional visual system and distinct pigmentation.

Bottom: Tinaja cavefish (eyeless) with minimal pigmentation on head and body.

head and body. nage credit: Macrophotograph by Michael J. Boyle and











**Evolutionary Myths of Conventional** Science

> TIM CLAREY, PH.D., AND MICHAEL J. BOYLE, PH.D.

5 The Big Bang Myth

JAKE HEBERT, Ph.D.

The Myth of Abiogenesis

MICHAEL J. BOYLE, PH.D.

Darwin's Galápagos Finches: The Myth of Natural Selection

JEFFREY P. TOMKINS, Ph.D.

12 Blind Cavefish Unmask the **Convergent Evolution Myth** 

MICHAEL J. BOYLE, PH.D.

15 Pervasive Genome Functionality Destroys the Myth of Junk DNA

JEFFREY P. TOMKINS, Ph.D.

**16** Evolutionary Vestigial Features: Worse Than Myth, a Scam

RANDY J. GULIUZZA, P.E., M.D.

18 Busting the Myth about Lucy

BRIAN THOMAS, PH.D., AND CHRIS RUPE, PH.D.

19 Archaeopteryx, Myth of a Transitional Fossil

TIM CLAREY, PH.D.

20 The Tiktaalik Missing Link Myth

FRANK SHERWIN, D.Sc. (Hon.)

22 The Age of Reptiles Myth

BRIAN THOMAS, PH.D.

stewardship

23 A Booming Generation

REGINA KRIEG

### **Evolutionary Myths of Conventional Science**

CLARE

ne of the most influential ideas over the history of the world is that billions of years of nothing created everything! Remarkably, this idea continues to dominate society, and in particular the academic mindset within conventional science. Yet we should remain steadfast in our knowledge that such conjecture is only a myth: "an unfounded or false notion."1

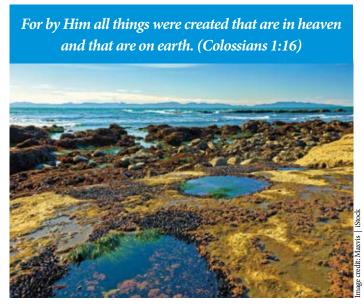
Evolutionary concepts were around in one form or another as far back as ancient Greece. But Charles Darwin refined the

myth to account for the origin and diversification of all forms of life on Earth, earning him most of the credit for the theory of evolution. In his 1859 book On the Origin of Species by Means of Natural Selection, Darwin envisioned that species were relatively plastic and could transform from one kind into another through a process he called natural selection.<sup>2</sup> He argued that nature preserved species that were favored to endure different environmental pressures and reproduce. In effect, he replaced the God of creation with "Mother Nature." When an organism couldn't adapt to new conditions, it went extinct and was replaced by another version that was better suited.

However, the way this process actually works is vague and undefined. What is environmental pressure? What decides which organisms are better suited? And how does nature select without intelligence?

These questions ultimately depend on the early formation of molecules and living cells. But none of them could be answered by Darwin or his theory. Furthermore, he realized that the fossil record didn't support evolution either, but he still believed we'd find all the missing links between organisms in the future. Today, 166 years later, the missing links are still missing.

Regardless, Darwin duped the scientific community into believing his myth. To do so, he had to embrace the paradigm of deep time that James Hutton put forth in the late eighteenth century.3 Darwin needed vast amounts of time for small changes to accumulate into big changes. For example, he proposed that notable differences in finch beaks provided supporting evidence, claiming their beaks evolved slowly through natural selection. Since then, intensive studies have revealed that Galápagos finch beaks undergo minute changes within the same bird, in the same generation, in response to seasonal differences in the availability and size of seeds in their diets.4 The variation in these finches was, ironically, part of the basis of Darwin's theory of evolution.5



Moreover, in the evolutionary zeal to find missing links, conventional scientists have created hoaxes and made mistakes, including Piltdown Man and the more recent half-bird, halfdinosaur Archaeoraptor liaoningensis.6,7 In reality, there are few, if any, undisputed transitional fossils.8 Instead, many fossils are discovered as complete creatures in their order of burial by the Flood. Scientist Michael Denton summarized this dilemma by stating,

Whatever view one wishes to take of the evidence of paleontology, it does not pro-

vide convincing grounds for believing that the phenomenon of life conforms to a continuous pattern. The gaps have not been explained away.9

That is, not without introducing another unsolved mystery of punctuated equilibrium.<sup>10</sup> Collectively, the lack of evidence for the origin of life, the evolution of life, and transitional fossil life remains an insurmountable problem for conventional scientists.

At ICR, we understand that nature could never create life or transform one creature into another. All organisms are created with forethought and intention to self-adjust in order to adapt to their respective environments. And thus, organisms are the agents of control. As a collection of physical laws, nature is certainly not a living force and is therefore void of any creative capacity. For these and many other reasons, we recognize Jesus Christ as the Creator and Sustainer of life. "All things were created through Him, and for Him" (Colossians 1:16).

#### References

- Merriam-Webster, s.v. "myth." Accessed July 29, 2025. https://www.merriam-webster.com/dictionary/myth.
- Darwin, C. 1859. On the Origin of Species. London: John Murray.
- James Hutton proposed deep time after a 1788 visit to the east coast of Scotland. See Clarey, T. 2023. Siccar Point, the Shrine of Deep Time. Acts & Facts. 52 (3): 21–22.
- Burrows, L. For Darwin's Finches, Beak Shape Goes Beyond Evolution. Harvard John A. Paulson School of Engineering and Applied Sciences. Posted on seas.harvard.edu/news November 12, 2021.
- 18.1C: The Galapagos Finches and Natural Selection. Introductory and General Biology. Genreal Biology (Boundless). Libre Texts. Posted on biolibretexts.org. Sloan, C. P. 1999. Feathers for *T. rex? National Geographic*. 196 (5): 98–107
- Simons, L. W. 2000. Archaeoraptor Fossil Trail. National Geographic. 198 (4): 128-132.
- Morris, J. D. and F. J. Sherwin. 2010. The Fossil Record: Unearthing Nature's History of Life. Dallas, TX: Institute for Creation Research.
- Denton, M. 1986. Evolution: A Theory in Crisis. Bethesda, MD: Adler & Adler Publishers, 194. Gould, S. J. and N. Eldridge. 1977. Punctuated Equilibria: The Tempo and Mode of Evolution Reconsidered. *Paleobiology*, 3 (2): 115–151.

Dr. Clarey is the director of research and Dr. Boyle is a research scientist at the Institute for Creation Research. Dr. Clarey earned his Ph.D. in geology from Western Michigan University, and Dr. Boyle earned his Ph.D. in zoology from University of Hawaii at Manoa.





# **MYTH**

JAKE D . HEBERT,

Image Credit: NASA/WMAP Science Team

ccording to the most popular conventional origins story, space, energy, time, and matter as we know them came into being 14 billion years ago when a hypothetical process called inflation caused space to rapidly expand. Somehow this cosmic accident eventually resulted in myriads of stars, planets, and galaxies as well as Earth and all its inhabitants. Despite the idea's apparent absurdity, it's taken seriously by millions of people, including most scientists.

The Big Bang's three main supporting arguments are (1) the

redshifts of distant galaxies, which are seen as evidence for an expanding universe; (2) the Big Bang's ability to account for the amounts of hydrogen and helium in the universe; and (3) the existence of a cosmic microwave background (CMB) radiation that's said to be an afterglow from about 400,000 years after the Big Bang happened.

However, an expanding universe doesn't necessarily imply the Big Bang. God could have imposed an expansion on a large, newly created universe, perhaps to guard against gravitational collapse. Moreover, a number of both conventional and creation scientists openly question this particular interpretation of the redshift data. There's a way to test whether or not galaxy redshifts really are caused by an expansion of space, but scientists who

performed this test have obtained contradictory or equivocal results.<sup>1</sup>

Likewise, the Big Bang model has an adjustable parameter called the baryon-to-photon ratio. Theorists choose a particular ratio value that allows the Big Bang to produce the observed amounts of hydrogen and helium.<sup>2</sup> Even with this freedom, the Big Bang still cannot correctly account for the amount of lithium in the universe.3

The Big Bang's strongest argument is perhaps the existence of the CMB radiation. And yet, the details of this radiation have repeatedly contradicted Big Bang expectations, forcing multiple revisions to the model.4

Moreover, the Big Bang is plagued by other serious, persistent

pansion rate of the universe—one using galaxies' estimated distances and speeds and the other inferred from CMB radiation details—give contradictory answers, and distant galaxies often appear more mature than Big Bang reckoning expects. This long-standing problem has only been exacerbated by data from the James Webb Space Telescope.1

problems.<sup>2</sup> Two different methods of calculating the presumed ex-

Another challenge is that Big Bang assumptions forced theorists to conclude that 95% of the universe is comprised of exotic, unknown

> "stuff." Big Bang proponents acknowledge that by their own reckoning they know almost nothing about the universe's basic composition and yet boldly claim to (mostly) understand the process through which the universe supposedly came into being. It's like not knowing the ingredients in a birthday cake yet claiming to understand its recipe!

> If the Big Bang is such a poorly constructed scientific model, why do its proponents cling to it so tenaciously? For many, embracing a weak scientific model is preferable to acknowledging that they will one day have to give an account to our universe's Creator.

> Some Christians claim God used the Big Bang to make the universe, but that idea doesn't fly. In addition to the Big Bang's scientific problems, it contradicts

Genesis at multiple points—billions versus just thousands of years of history, stars before the earth rather than the earth before the stars, etc.

The Big Bang is a modern-day myth that's both bad theology and bad science. It's long past time for it to be abandoned in favor of the true origins story found in Genesis.

#### article highlights

- Although the Big Bang is the widely accepted model for the universe's origin, its three main supporting arguments receding galaxies, amounts of hydrogen and helium, and a cosmic microwave background radiation—are problematic.
- Two persistent problems are contradictory expansion rates calculated by two different methods and distant galaxies that appear more mature than expected.
- Cosmologists' Big Bang assumptions led them to conclude that most of the universe exists in exotic, unknown forms of energy—if they don't even know what the universe is, how then can they claim to understand how it came to be?
- The Big Bang is bad theology and bad science that should be rejected.

#### References

- Hebert, J. 2022. James Webb Telescope vs. the Big Bang. Acts & Facts. 51 (7): 14–17.
  Hebert, J. 2019. Continuing Troubles for the Big Bang Model. Acts & Facts. 48 (11): 10–13.
  Thomas, B. Big Bang Fizzles Under Lithium Test. Creation Science Up-
- date. Posted on ICR.org September 22, 2014, accessed May 27, 2025. Hebert, J. 2018. Does the Cosmic Microwave Background Confirm the Big Bang? Acts & Facts. 47 (6): 10-12.

Dr. Hebert is a research scientist at the Institute for Creation Research and earned his Ph.D. in physics from the University of Texas at Dallas.



## The Myth of Abiogenesis

MICHAEL J. BOYLE, PH.D.

he origin of life on Earth is one of the most polarizing issues across the history of mankind. From the perspective of conventional science, life emerged by the production of living matter from nonliving matter through a complex, multicomponent process characterized as abiogenesis (a = without, bio = life, genesis = origin). This hypothetical framework implies that inorganic substances were abiotically synthesized into the fundamental organic compounds (amino acids, lipids, nucleotides) ultimately required for the structure and function of living cells.

Historically, notable hypotheses for life's origin include Aristotle's early account of spontaneous generation,<sup>3</sup> later refuted by Pas-

teur and Tyndall;<sup>4</sup> Darwin's conception that life arose in a warm little pond;<sup>5</sup> and the primordial soup of warm oceans and hydrothermal vents that Operin and Haldane proposed.<sup>5</sup> However, the classical experiment on abiogenesis by Stanley Miller<sup>6</sup> has received the most at-

#### article highlights

- Conventional science claims that life originated abiotically (from nonliving matter) billions of years ago on a primitive earth.
- No experimental evidence supports this claim, and the complex organic molecules required for life don't arise spontaneously today.
- Only the Ancient of Days, who designed every atom, molecule, and cell, could have created the myriad forms of life that exist.
- Any other view belongs within the purview of mythology.

tention and is promoted today within college textbooks worldwide. <sup>7</sup> So what did Miller and others actually find?

The Miller-Urey experiment attempted to reproduce atmospheric conditions on a prebiotic earth (Figure 1).<sup>6,8</sup> Methane, ammonia, and hydrogen gases (CH<sub>4</sub>, NH<sub>3</sub>, H<sub>2</sub>) were combined in a closed system to simulate a reducing environment (e.g., without oxygen or oxidizing gases). Water vapor was circulated through the gases, exposed to an electric discharge, condensed, and then sampled. The only meaningful organic compounds identified were low yields of glycine and alanine,<sup>8-10</sup> two of the set of 20 amino acids required for life by all organisms. Soon

after, another scientist synthesized adenine (DNA nucleotide) from hydrogen cyanide under conditions also assumed to represent a primitive earth.<sup>11</sup>

Moreover, researchers promoting origin of life (OoL)12,13 and

RNA world<sup>14,15</sup> hypotheses suggest that prebiotic chemistry may have been delivered to Earth by asteroids, meteorites, or comets.<sup>16,17</sup> But is there any real evidence that ancient, random, naturalistic forces transformed inorganic chemistry into essential organic compounds or the biochemical codes of life on Earth or any other planet? No!

First, Miller-type experiments under reducing<sup>6</sup> or oxidizing<sup>8</sup> atmospheres only produce proteinogenic glycine and alanine (racemic), both of which would be reactively hindered by non-proteinogenic amino acids and other substances.<sup>9,10</sup> Second, the most essential macromolecules of life (proteins, nucleic acids, phospholipids, carbohydrates) only function as polymers and would hydrolyze in the presence of water.<sup>10</sup> Therefore, they are inoperable outside of a cell, the basic functional unit of life.<sup>18</sup> Third, if abiogenesis were operative today, microbes would instantly devour all of the essential organic molecules,

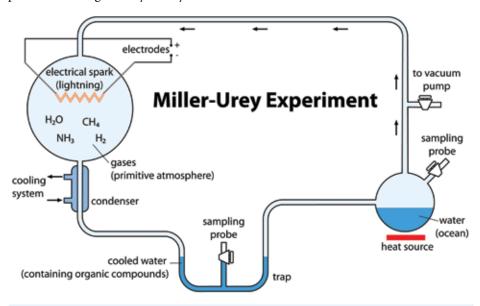


Figure 1. Schematic of the apparatus used by Stanley Miller and Harold Urey in their famous experiment on the abiogenesis of organic compounds.<sup>6</sup> Within the apparatus, water vapor ascends to mix with methane, ammonia, and hydrogen gas in the upper chamber. Electricity provides the spark (lightning) that is assumed to transform inorganic matter into amino acids that are essential for life.

Image credit: gstraub | iStock

as both Darwin and Oparin percieved.<sup>5,19</sup> Fourth, since abiogenesis is postulated to have occurred on Earth more than 3.5 billion years ago, it is not testable, verifiable, or falsifiable and is therefore outside the purview of science.<sup>20</sup>

Yet even remote timeframes are no obstacle for an inflexible mind determined to prove that life arose from nonliving molecules. The following quote from Miller and Urey is revealing.

Since the demonstration by Pasteur that life does not arise spontaneously at the present time, the problem of the origin of life has been one of determining how the first forms of life arose, from which all the present species have evolved.<sup>8</sup>

Sound minds would have stopped at Pasteur's refutation of spontaneous generation.<sup>4</sup> Instead, those intent on a God-free origin of life plunge toward incomprehensible time—the keystone of evolution—while ignoring the true and accurate biblical account of history. Clearly, the elapsed ~6,000-year scriptural record would not only prohibit the inception, diversification, and functionality of abiotic chemical precursors, but it would also rule out the immense time required for their transformation into the essential biochemistry we find today in all cellular life.

Notably, both unicellular and multicellular prokaryotes (bacteria) still inhabit extreme and inhospitable environments today<sup>21</sup> and most likely function as originally designed. Perhaps cyanobacteria, within which chloroplasts are thought to have first evolved,<sup>21</sup> are aligned with the biblical timeline as well. Additionally, cyanobacterial origins, along with their presumed role in the initiation of Earth's oxygen-containing atmosphere 2.44–2.22 billion years ago, remain another facet of wishful conjecture.<sup>22</sup>

Likewise, warm little ponds, hydrothermal vents, lightning, and primitive atmospheres are merely subjective forgeries to counter what the heavens and Earth clearly reveal: existing abiotic and biotic chemicals do not reflect the ancient precursors of essential macromolecules or living cells that may have arisen from unassisted experiments billions of years ago. Simply put, life cannot create itself.

To completely convince the world of abiogenesis and all that is

proposed to arise from it, theorists will need to start from scratch. That is, they will need to get their own stars, their own Earth, and all of the matter, energy, and laws that hold them together and maintain the operation of every elemental product contained within them. Until then, mixing known chemicals, gases, fluids, and electricity found on our planet in order to abiotically synthesize the fundamental organic compounds necessary for existing life is refutable.

What is irrefutable is that existing life has only ever been confirmed to arise from preexisting life. Without human intervention, matter alone cannot create or perform a "Miller" experiment or ever account for the supremely intelligent mind behind the Quaternary Triplet Code

of DNA.<sup>23</sup> In fact, the massless information intrinsic to every form of biological life "has never been observed to arise from purely physical or chemical processes."<sup>23</sup>

These facts are established, but to a reprobate mind the alternative is unacceptable: "For in six days the LORD made the heavens and the earth, the sea, and all that is in them, and rested the seventh day" (Exodus 20:11). Any other view belongs exclusively within the purview of mythology, as exemplified here by the myth of abiogenesis.

#### References

- Lawrence, E., ed. 2011. Henderson's Dictionary of Biology, 15th ed. San Francisco, CA: Benjamin Cummings.
- Borror, D. J. 1960. Dictionary of Word Roots and Combining Forms. Mountain View, CA: Mayfield Publishing Co.
- 3. Cresswell, R., trans. 1887. Aristotle's History of Animals. London, UK: George Bell & Sons.

  4. Copant, L.B. 1953. Pastawis and Tindall's Study of Spontaneous Generation. Combridge
- Conant, J. B. 1953. Pasteur's and Tyndall's Study of Spontaneous Generation. Cambridge, MA: Harvard University Press.
- Schopf, J. W. 2024. Pioneers of Origin of Life Studies–Darwin, Oparin, Haldane, Miller, Oróand the Oldest Known Records of Life. Life. 14 (10): 1345.
- Miller, S. L. 1953. A Production of Amino Acids under Possible Primitive Earth Conditions. Science. 117 (3046): 528–529.
- 7. Urry, L. A. et al. 2017. Campbell Biology, 11th ed. London, UK: Pearson Education, Inc.
- Miller, S. L. and H. C. Urey. 1959. Organic Compound Synthesis on the Primitive Earth: Several Questions about the Origin of Life Have Been Answered, but Much Remains to Be Studied. Science. 130 (3370): 245–251.
- Truman, R., B. Schmidtgall, and C. Basel. 2024. Relative Proportion of Prebiotic Amino Acids: Part 3–Experiments Using Reduced Gas Mixtures. *Journal of Creation*. 38 (3).
   Truman, R., B. Schmidtgall, and C. Basel. 2025. Relative Proportion of Prebiotic Amino Acids:
- Truman, R., B. Schmidtgall, and C. Basel. 2025. Relative Proportion of Prebiotic Amino Acids: Part 4–The Case for the Primitive Atmosphere Having Been Weakly Reducing. *Journal of Creation*. 39 (1).
- Oró, J. 1961. Mechanism of Synthesis of Adenine from Hydrogen Cyanide under Possible Primitive Earth Conditions. Nature. 191: 1193–1194.
- 12. Szostak, J. 2018. How Did Life Begin. Nature. 557 (7704): S13-S15.
- Sasselov, D. D., J. P. Grotzinger, and J. D. Sutherland. 2020. The Origin of Life as a Planetary Phenomenon. Science Advances. 6 (6).
- 14. Gilbert, W. 1986. Origin of Life: The RNA World. *Nature*. 319 (6055): 618.
- Orgel, L. E. 2004. Prebiotic Chemistry and the Origin of the RNA World. Critical Reviews in Biochemistry and Molecular Biology. 39 (2): 99–123.
- Pearce, B. K. et al. 2017. Origin of the RNA World: The Fate of Nucleobases in Warm Little Ponds. Proceedings of the National Academy of Sciences. 114 (43): 11327–11332.
- Rivilla, V. M. et al. 2022. Molecular Precursors of the RNA-World in Space: New Nitriles in the G+ 0.693- 0.027 Molecular Cloud. Frontiers in Astronomy and Space Sciences. 9: 876870.
- Alberts, B. et al. 2022. Molecular Biology of the Cell, 7th ed. New York, NY: W. W. Norton & Company.
- 19. Oparin, A. I. 1953. The Origin of Life, 2nd ed. Mineola, NY: Dover Publications, Inc.
- 20. Cupps, V. R. 2014. Hijacking the Scientific Method. Acts & Facts. 43 (8): 13–15.
- 21. Rogers, K. Abiogenesis. Encyclopædia Britannica. Posted on britannica.com.
- Schirrmeister, B. E., A. Antonelli, and H. C. Bagheri. 2011. The Origin of Multicellularity in Cyanobacteria. BMC Evolutionary Biology. 11, article 45: 1–21.
- Gitt, W. W., R. W. Compton, and J. A. Fernandez. 2011. Without Excuse. Powder Springs, GA: Creation Book Publishers.

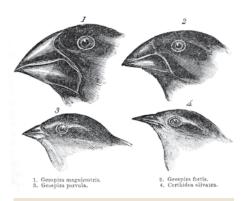
Dr. Boyle is a research scientist at the Institute for Creation Research and earned his Ph.D. in zoology from the University of Hawaii at Manoa.



## Darwin's Galápagos Finches The Myth of Natural Selection TOMKINS, PH.D. Pinnacle Rock on Bartolomew Island, Santiago Island in the background, Galapágos age credit: DC\_Colombia, iStock

#### article highlights

- Charles Darwin believed the dramatic beak variation of Galápagos Islands finches supported his theory of evolution.
- In a study of the finches begun in 1973, Peter and Rosemary Grant collected 40 years of data that indicated a relationship between drought cycles and beak variation.
- Finches' adaptive mechanisms respond to drought cycles and food availability, causing the rapid beak and body changes.
- Recent studies uncovered blocks of finch DNA related to beak size and epigenetic tags that influence beak size and shape.
- Rather than evidence for evolution, the finches' built-in genes and epigenetic tags showcase Christ Jesus' remarkable design.



Darwin's famous finches, 1845 Image credit: public domain

group of birds known as Darwin's finches (genus *Geospiza*) lives in the Galápagos Islands in the Pacific Ocean 600 miles west of Ecuador. These birds got their fame from Charles Darwin's visit to the Galápagos in 1835. When Darwin later examined the finches he collected, he believed their beak variation was evidence for

his theory of gradual evolution by natural selection.

While several authors wrote about Galápagos finches after Darwin, serious research did not occur until 1973 when a Princeton University husband and wife team, Peter and Rosemary Grant, began using them as an evolutionary model system. They carefully monitored the populations of various finch species, focusing primarily on the Galápagos island Daphne Major, which was well-isolated from human interference compared to the other islands. The Grants recorded weather patterns, the birds' diets, and changes in body and beak size/shape over 40 years.<sup>2</sup>

The Grants initially discovered that weather cycles affected beak traits. Droughts caused plants to produce tough seeds that in turn affected the finch beaks. Finches with smaller beaks couldn't crack the seeds



and therefore starved, while the few with larger beaks could crack open the seeds and survived. Thus, depending on the seasonal weather patterns, the beak traits cycled back and forth.

#### **Adaptive Genetic Variation**

A 2022 study included a comprehensive analysis of DNA sequences associated with traits such as beak and body size.<sup>3</sup> Researchers discovered that in the small, medium, and large ground finches there were 28 different chromosomal regions (loci) exhibiting genetic variation that was connected to beak development and body size.

Several of the same researchers had earlier sequenced DNA from 120 different individuals representing all of Darwin's finches and two close relatives. Their 2015 study found "extensive evidence for interspecific gene flow throughout the radiation [diversification]." Concerning adaptive interbreeding, the study authors wrote,

Extensive sharing of genetic variation among populations was evident, particularly among ground and tree finches, with almost no fixed differences between species in each group.<sup>4</sup>

Other researchers later used whole genome data from 3,955 of Darwin's finches representing four species on Daphne Major.<sup>5</sup> They discovered that six major loci explained 45% of the observed variation in beak size. The most prominent locus was a region containing four genes that carried enough variation within it to cause a rapid adaptive shift in the population in response to the drought conditions that altered the food supply.

#### **Adaptive Epigenetics**

Epigenetics is another important mechanism in adaptation. It involves the ad-



Medium ground finch, Geospiza fortis, Puerto Egas, James Island, Isla Santiago, Santiago Island, Galápagos



Small ground finch, Geospiza fuliginosa, Galápagos

Image credit: Gerald Corsi | Stock

dition of chemical tags in the genome that don't change the actual genetic code. For example, adding a methyl group to cytosine nucleotides (methylation) changes gene expression.

In a 2014 study of Darwin's finches, researchers examined genome-wide patterns of DNA methylation. They found that methylation patterns—not DNA sequence variation—correlated with increased trait diversity. Researchers also examined epi-

genetic profiles of specific genes involved in the morphogenesis of beak shape, immune responses, and coloring, showing that these traits again varied due to epigenetics, not DNA sequence.

In a 2017 study, researchers collected data from over 1,000 birds from the *Geospiza fortis* and *G. fuliginosa* species of Darwin's finches.<sup>7</sup> The birds were separated into two different groups that lived on Santa Cruz Island in the Galápagos, which had a significant human population. One of the finch populations was rural and ate food in the wild. The others were urban and had adapted to human food.

The researchers found that urban *G. fortis* finches were larger in body size and beak shape compared to rural *G. fortis* due to increased food availability at the urban site. The two different *G. fuliginosa* populations showed no significant physical changes. However, they did discover dramatic DNA methylation differences between the urban and rural populations of both species, showing that food-source adaptation was regulated by epigenetics.

#### Conclusion

Evolutionists claim that random mutations and the mystical agent of natural selection fuels adaptation. However, science has shown that adaptation is best explained by built-in genetic variation and epigenetic control systems engineered by our Creator, the Lord Jesus.

#### References

- Grant, P. R. and B. R. Grant. 2005. Darwin's Finches. Current Biology. 15 (16): R614, 3.
- Grant, P. R. and B. R. Grant. 2014. 40 Years of Evolution: Darwin's Finches on Daphne Major Island. Princeton, NJ: Princeton University Press
- Princeton University Press.

  Rubin, C. J. et al. 2022. Rapid Adaptive Radiation of Darwin's Finches Depends on Ancestral Genetic Modules. *Science Advances*. 8 (27): eabm5982.
- Lamichhaney, S. et al. 2015. Evolution of Darwin's Finches and Their Beaks Revealed by Genome Sequencing. *Nature*. 518 (7539): 371–375.
- Enbody, E. D. et al. 2023. Community-Wide Genome Sequencing Reveals 30 Years of Darwin's Finch Evolution. Science. 381 (6665).
- Skinner, M. K. et al. 2014. Epigenetics and the Evolution of Darwin's Finches. Genome Biology and Evolution. 6 (8): 1972–1989.
- 7. McNew, S. M. et al. 2017. Epigenetic Variation Between Urban and Rural Populations of Darwin's Finches. *BMC Evolutionary Biology.* 17, article 183.

Dr. Tomkins is a research scientist at the Institute for Creation Research and earned his Ph.D. in genetics from Clemson University.





#### **SEPTEMBER 18-21**

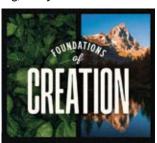
Lafayette, LA First Baptist Lafayette

#### **Foundations of Creation Conference**

(R. Guliuzza, T. Clarey, B. Thomas, F. Sherwin, J. Hebert, E. Steele)

Youth conference with Matt Miles of Creation Truth Foundation and children's sessions with ICR's Kids on Mission Director Miss Emmy!

Registration required ICR.org/LafayetteLA or 214.615.8333



#### **SEPTEMBER 28**



Cordova, TN First Assembly Memphis

#### **Creation Sunday**

(F. Sherwin)

ICR.org/MemphisTN or 214.615.8325

#### **OCTOBER 1-6**

Parks Across America Tour: South Florida National Parks



Join ICR scientists and experts for an unforgettable experience seeing Everglades National Park, Big Cypress National Preserve, Ten Thousand Islands National Wildlife Refuge, and the Florida Keys, among other locations!

Space is limited—registration required ICR.org/SouthFloridaParks or 214.615.8325

#### **OCTOBER 17-18**

Beaverton, OR

#### **Portland Area Creation Conference**



(R. Guliuzza, T. Clarey, B. Thomas, J. Hebert, E. Steele)
Join ICR scientists for a field trip to Mount St. Helens!
Featured speakers include NASA astronaut Colonel Jeff
Williams, Bill Hoesch of the Mount St. Helens Creation
Center, and Judy Salisbury of Logos Presentations.
Conference sessions available for children in grades K-5!
Registration required
ICR.org/PortlandOR or 214.615.8333

#### **OCTOBER 24-25**

Edmonton, Alberta, Canada Providence Canadian Reformed Church

#### **Creation Weekend Conference**

Hosted by the Creation Science Association of Alberta
(B. Thomas)
Registration required
ICR.org/EdmondtonAB or 214.615.8333

#### **OCTOBER 26**

Spruce Grove, Alberta, Canada (B. Thomas) ICR.org/SpruceGroveAB or 214.615.8333

#### **OCTOBER 26**

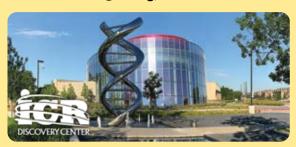
Prescott Valley, AZ
First Southern Baptist Church
(F. Sherwin)
ICR.org/PrescottValleyAZ or 214.615.8325

Please check **ICR.org/events** for the most up-to-date event information. If you have questions about a specific event, please send an email to **events@icr.org** or call **800.337.0375** and press 6.

#### **UPCOMING EVENTS AT THE ICR DISCOVERY CENTER**

1830 Royal Lane, Dallas, TX 75229 For more information visit

ICRDiscoveryCenter.org/Special-Events, email discover@icr.org, or call 800.743.6374.



#### **SEPTEMBER 1**

#### **Labor Day Celebration**

Featuring ICR's Dr. Frank Sherwin and worldrenowned Juggler for Jesus David Cain.

Join us for a day of educational presentations, food trucks, a petting zoo, fun activities, and discounted tickets!

Tickets available at

ICRDiscoveryCenter.org/Special-Events.

#### **SEPTEMBER 18**

### North Texas Giving Dollar Day at the Discovery Center



Bring your family and friends to the Discovery Center to enjoy \$1 tickets to the Exhibit Hall and \$1 tickets to the planetarium, plus special activities and exciting giveaways! Consider supporting your local museum on this special day.

#### **SEPTEMBER 27**

#### **Serious Science Talks**

September's featured speaker is ICR scientist Dr. Jake Hebert. This program is designed specifically for college students, faculty, and staff who are ready to dive deeper into the world of science and faith. Attendees will enjoy a free



lunch along with complimentary access to the Exhibit Hall and a planetarium show.

Register at ICRDiscoveryCenter.org/Special-Events.

#### **OCTOBER 11**

#### **Estate Planning Workshop**



Featuring Don Totusek of Francis & Totusek L.L.P., Dan Farell of Farell Financial Advisory Services, and ICR Donor Relations & Stewardship Manager Regina Krieg, CGPA. Join ICR for a special workshop designed to help you secure your legacy. This event will equip you with biblical and practical insights to make sure your intentions for family and ministry are honored.

Attendance is free, but you'll need to register at

Attendance is free, but you'll need to register a ICRDiscoveryCenter.org/Special-Events.

#### **NOVEMBER 8**

#### Biblical Archaeology Conference: Evidence for the Bible



Featuring Dr. Titus Kennedy and Dr. Randall Price. Join us for an insightful conference where scholars present archaeological discoveries and research, highlighting the compelling evidence for the Bible. Tickets available at

ICRDiscoveryCenter.org/Special-Events.

#### **DAY4 ASTRONOMY MEETING**

### Third Saturday of each month at 5:00 p.m.

Grow your faith in Christ while learning astronomy from a biblical worldview. Free event, no registration is needed.

info@Day4.org or 903.692.1111



## Blind Cavefish Unmask the Convergent Evolution Myth

MICHAEL J. BOYLE, PH.D.

ithin the ever-expanding theory of evolution, there is a system of specialized language designed to identify each major interpretative concept. Some terminology is so versatile that it could be applied to a unique observation or a broad set of patterns across extensive scales of time and space. Such terms appear to be intentionally flexible, or even modifiable. From the introduction of a prestigious book of essays, *Keywords in Evolutionary Biology*, the authors state,

Our goal in this book has been to identify and explicate those terms in evolutionary biology that, though commonly used, are plagued in their usage by multiple concurrent and historically varying meanings.<sup>1</sup>

The term "convergent" has varying meanings within evolutionary biology. Definitions include the evolution of similar features in independent lineages;<sup>2</sup> similarity between two organisms, structures, or molecules by independent evolution along similar lines;<sup>3</sup> and similarity between species caused by similar but independent evolutionary responses to a common environmental problem.<sup>4</sup> When considered as a group, these definitions broadly define convergent evolution as showing similar forms and functions in different species that do not descend from a common ancestor. But is convergent evolution actually an observable process?

#### Compensatory Adaptations in A. mexicanus

At the Institute for Creation Research, we are investigating the development and diversity of adaptations in *Astyanax mexicanus* (Mexican tetra), a freshwater fish that exhibits two contrast-

ing morphotypes: eyed surface-dwelling fish (surface fish) with distinct pigmentation patterns and eyeless cave-dwelling fish (cavefish) with minimal pigmentation (Figure 1). At least 30 genetically identified populations of A. mexicanus have been recorded from northeastern Mexico.5 All cavefish strains share a similar set of highly optimized adaptations to subterranean environments (caves), which are interpreted by most conventional scientists as having evolved by convergent evolution.6-8 However, all A. mexicanus cavefish and surface fish are members of a single species, and thus an interpretation of convergence is problematic.

By direct comparison with the eyed

#### article highlights

- Evolutionary theory includes flexible terminology designed to accommodate a broad range of interpretations.
- The term "convergence" is routinely used to explain the evolution of similar characteristics in organisms that do not share a common ancestor.
- Astyanax mexicanus includes 30
   cave-dwelling populations of a single species of fish with highly similar adaptations, but it's promoted as an example of convergent evolution.
- ICR's model of continuous environmental tracking (CET) provides the most accurate explanation for how organisms adapt in similar ways to similar environmental conditions.
- Only a Divine Engineer can account for the creation and adaptation of life on Earth.

surface-dwelling form, eyeless cavefish exhibit specific adaptations that compensate for an absence of vision. There are enhancements in feeding, smell, respiration, energy



Figure 1. Adult stages of Astyanax mexicanus (Mexican tetra). a) Rascón surface fish with functional visual system and distinct pigmentation. b) Tinaja cavefish (eyeless) with minimal pigmentation on head and body.

Image credit: Macrophotograph by Michael J. Boyle and Michael Lane

storage and metabolism, prey capture, and navigation.9,10 For example, cavefish develop larger jaws with more teeth, increased numbers of oral taste buds, and a wider distribution of extraoral taste buds with age.11 These feeding-related (gustatory) adaptations are likely correlated with enlargement of the hypothalamus, its associated neuroanatomy,12 and the "greatly enhanced" circuitry of larger olfactory pits, bulbs, and epithelia with higher chemosensory capabilities in cavefish. 12-14 During development, embryonic olfactory tissues (nasal placodes) are comparatively larger in the cavefish, resulting in larger olfactory epithelia and nerves with an ability to detect 105-fold lower concentrations of amino acids than surface fish of similar age.14

Respiratory compensations include smaller hearts with rounded chambers (ventricles) and more muscular ridges (trabeculae), providing a "larger surface area" for higher oxygen uptake.<sup>15</sup> And although cavefish possess fewer red blood cells (erythro-

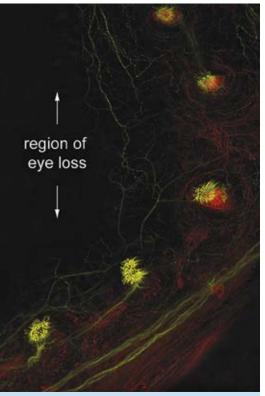


Figure 2. Neuromasts along arc of degenerating retina in a Tinaja cavefish at 25 days of development. Hair cells with cilia (yellow) and muscular support fibers (red) are visible.

Image credit: Confocal laser scanning micrograph by Michael J. Boyle  $^{\rm 22}$ 

cytes) than surface fish, the two-dimensional surface area of those cells is "significantly larger." This indicates a higher concentration of hemoglobin per erythrocyte and measurably higher concentrations of blood hemoglobin when compared with conspecific surface fish. This is a critical compensation for life under low-oxygen conditions commonly found within karst cave environments.

As for energy storage and utilization within nutrient-poor habitats, cavefish increase their foraging behavior and offset starvation periods from larval through adult stages by continuous formation of fat cells (adipocytes) to compensate for food scarcity.17 They have comparatively more and larger adipocytes than surface fish and accumulate triglycerides that enable them to survive on fatty acids. 18,19 In fact, cavefish have hyperglycemia, insulin resistance, elevated triglyceride levels, and fatty livers without harmful pathologies.<sup>20,21</sup> Metabolic conditions that would otherwise be detrimental are instead integrated for energy efficiency in caves.

#### **Sensory Compensation for Vision Loss**

One of the most critical adaptations

for cavefish survival involves expansion of the lateral line.23 Almost all fish have a lateral line system of neuromasts (sensors) that detect water flow and vibration. Each neuromast contains an array of mechanosensory hair cells that transform mechanical signals into chemical signals along nerves (Figure 2). These signals are converted into electrical impulses within the central nervous system.24 Thus, hair cells on the body and head (Figures 3 and 4) transfer sensory input to the brain, which relays that information back to tissues and muscles along the body (e.g., jaws, fins, tail).

Compared with surface fish, both juvenile and adult

cavefish possess several-fold more superficial neuromasts across their head region (anterior lateral line),<sup>23,25,26</sup> and both canal and superficial neuromasts are larger and contain more sensory hair cells.<sup>25</sup> These enhancements are directly linked to vibrational attraction behavior observed in cavefish that swim "toward the source of a water disturbance" in dark cave habitats.<sup>26</sup>

Cavefish rely upon their lateral line for locating mates during reproduction, avoiding obstacles, and capturing prey. Even more fascinating, neuromasts develop on the larval head and trunk prior to degeneration of the retina. This implies that the timing of early neuromast development anticipates the provision of adaptive sensory compensation for the loss of vision in *A. mexicanus* larvae.

Cavefish are certainly not the only cave-dwelling animals. Other troglomorphs with similar trait adaptations include crickets, spiders, centipedes, flatworms, snails, salamanders, and more. From a conventional worldview, similar traits across a diversity of body plans would actually support the interpretation of evolutionary convergence—similar responses to a common environment among taxa with uncommon ancestry.



Figure 3. Neural circuitry and distribution of neuromasts in a Tinaja cavefish larva at 15 days of development. Right-anterior view with axons and terminal hair cells (yellow); circular patch of cilia marks the right olfactory bulb.

Image credit: Confocal laser scanning micrograph by Michael J. Boyle



Figure 4. Neuromasts on right, left, and dorsal side of anterior head in a Tinaja cavefish larva at 15 days of development. Axons, terminal hair cells, olfactory bulbs (yellow), and actin fibers of musculature (red) are visible. Image credit: Confocal laser scanning micrograph by Michael J. Boyle

But remember, A. mexicanus cavefish and surface fish are members of an interbreeding group of fish. They are the same species! This is stunning since the conventional cavefish community suggests that regressive changes (loss of eyes, pigmentation, schooling, aggression, circadian rhythm) and constructive changes (jaws, teeth, tastebuds, olfactory bulbs, fat storage, insulin resistance, lateral line expansion) within A. mexicanus also support convergent evolution.9,10 Whether cavefish diverged from surface fish millions of years ago8 or only several thousand years ago,30 all varieties of A. mexicanus comprise one species, which by definition could never arise by convergent evolution. They can't have it both ways!

There is another explanation. At ICR, we hold a unique view on the origin and deployment of adaptations.6 Within Astyanax cavefish, there is an integrated system of preprogrammed adjustments that actively deploy in response to stimuli in subterranean environments. As with all other organisms, these fish continuously track a range of environmental parameters, assess those parameters on multiple levels (e.g., biochemical, genetic, cellular, physiological), and self-adjust. We model this process as continuous environmental tracking (CET).31

#### **Divine Engineering**

We predict that essential adaptations in cavefish and a broad diversity of unrelated cave-adapted (troglomorphic) body plans will become functional within one or two generations after their initial entrance into limestone cave environments. Accordingly, their anatomical, physiological, and behavioral adjustments will be rapid, repeatable, and reversable. In every case, the organism is in control of every adaptive change; the environment (nature) has no inventive or creative power.

Thus, there is one Creator, the Lord Jesus, who has endowed all organisms with such potential, providing the most authoritative explanation for how and why cavefish exhibit nearly identical functionality worldwide.32 The myth of convergent evolution is therefore unmasked by the divine engineering of developmentally integrated solutions to similar environmental challenges. There is only one Engineer who has the power to create such adaptive potential. "For since the creation of the world His invisible attributes are clearly seen, being understood by the things that are made." (Romans 1:20).

Keller, E. F. and E. A. Lloyd. 1992. Keywords in Evolutionary Biology. Cambridge, MA: Harvard University Press, 3-4.

- Urry, L. A. et al. 2017. Campbell Biology. London, UK: Pear-
- son Education, Inc. Lawrence, E. 2016. Henderson's Dictionary of Biology, 16th ed. London, UK: Pearson Education, Inc.
- Herron, J. C. and S. Freeman. 2014. Evolutionary Analysis, 5th ed. London, UK: Pearson Education, Inc. Warren, W. C. et al. 2021. A Chromosome-Level Genome
- of Astyanax mexicanus Surface Fish for Comparing Population-Specific Genetic Differences Contributing to Trait
- Evolution. *Nature Communications*. 12, article 1447. Boyle, M. J. et al. 2023. Testing the Cavefish Model: An Organism-Focused Theory of Biological Design Biological Design. Proceedings of the International Conference on Cre-
- ationism 9, article 78: 654. Wilkens, H. and U. Strecker. 2003. Convergent Evolution of the Cavefish *Astyanax* (Characidae, Teleostei): Genetic Evidence from Reduced Eye-Size and Pigmentation. *Biological Journal of the Linnean Society*. 80 (4): 545–554.
- Gross, J. B. 2012. The Complex Origin of Astyanax Cavefish. BMC Evolutionary Biology. 12, article 105: 1-12
- Jeffery, W. R. 2020. Astyanax Surface and Cave Fish Morphs. EvoDevo. 11, article 14.
- 10. Jeffery, W. R. 2001. Cavefish as a Model System in Evolutionary Developmental Biology. Developmental Biology. 231 (1): 1-12.
- 11. Berning, D., H. Heerema, and J. B. Gross. 2024. The Spatiotemporal and Genetic Architecture of Extraoral Taste Buds in Astyanax Cavefish. Communications Biology. 7, article
- 12. Rétaux, S., K. Pottin, and A. Alunni. 2008. Shh and Forebrain Evolution in the Blind Cavefish Astyanax mexicanus. Biology of the Cell. 100 (3): 139-147.
- 13. Rétaux, S. and D. Casane. 2013. Evolution of Eye Development in the Darkness of Caves: Adaptation, Drift, or Both? EvoDevo. 4 (26): 1-12.
- 14. Hinaux, H. et al. 2016. Sensory Evolution in Blind Cavefish Is Driven by Early Embryonic Events during Gastrulation and Neurulation. *Development*. 143 (23): 4521–4532.
- 15. Tang, J. L. et al. 2018. The Developmental Origin of Heart Size and Shape Differences in Astyanax mexicanus Populations. Developmental Biology. 441 (2): 272–284.

  16. Boggs, T. E., J. S. Friedman, and J. B. Gross. 2022. Alterations
- to Cavefish Red Blood Cells Provide Evidence of Adaptation to Reduced Subterranean Oxygen. Scientific Reports. 12, ar-
- Xiong, S. et al. 2018. Early Adipogenesis Contributes to Excess Fat Accumulation in Cave Populations of Astyanax mexicanus. Developmental Biology. 441 (2): 297–304.
- 18. Medley, J. K. et al. 2022. The Metabolome of Mexican Cavefish Shows a Convergent Signature Highlighting Sugar, Antioxidant, and Ageing-Related Metabolites. *Elife*. 11: e74539.
- 19. Olsen, L., E. Thum, and N. Rohner. 2021. Lipid Metabolism in Adaptation to Extreme Nutritional Challenges. Developmental Cell. 56 (10): 1417–1429.
- 20. Riddle, M. R. et al. 2018. Insulin Resistance in Cavefish as an Adaptation to a Nutrient-Limited Environment. Nature. 555 (7698): 647–651.
- Krishnan, J. et al. 2022. Liver-Derived Cell Lines from Cave-fish Astyanax mexicanus as an In Vitro Model for Studying Metabolic Adaptation. Scientific Reports. 12, article 10115.
- 22. The raw images for Figures 2-4 were produced in The William B. Dean, MD Imaging Center of the Institute for Creation Research.
- 23. Rodríguez-Morales, R. 2024. Sensing in the Dark: Constructive Evolution of the Lateral Line System in Blind Populations of Astyanax mexicanus. Ecology and Evolution. 14 (4): e11286.
- 24. D'Angelo, L. et al. 2016. Anatomical Features for the Adequate Choice of Experimental Animal Models in Biomedicine: I. Fishes. Annals of Anatomy-Anatomischer Anzeiger.
- 25. Lunsford, E. T. et al. 2022. Evolutionary Convergence of a Neural Mechanism in the Cavefish Lateral Line System. Elife. 11: e77387.
- 26. Yoshizawa, M. et al. 2010. Evolution of a Behavioral Shift Mediated by Superficial Neuromasts Helps Cavefish Find Food in Darkness. *Current Biology*. 20 (18): 1631–1636. 27. Lloyd, E. et al. 2018. Evolutionary Shift Towards Lateral Line
- Dependent Prey Capture Behavior in the Blind Mexican
- Cavefish. Developmental Biology. 441 (2): 328–337.
  28. Alunni, A. et al. 2007. Developmental Mechanisms for Retinal Degeneration in the Blind Cavefish Astyanax mexica-
- mus. Journal of Comparative Neurology. 505 (2): 221–233.
  29. Sarrazin, A. F. et al. 2010. Origin and Early Development of the Posterior Lateral Line System of Zebrafish. Journal of Neuroscience. 30 (24): 8234-8244.
- 30. Fumey, J. et al. 2018. Evidence for Late Pleistocene Origin of Astyanax mexicanus Cavefish. BMC Evolutionary Biology. 18, article 43.
- 31. For more information on CET, visit ICR.org/cet.
- 32. Borowsky, R. 2018. Cavefishes. Current Biology. 28 (2): R60-

Dr. Boyle is a research scientist at the Institute for Creation Research and earned his Ph.D. in zoology from the University of Hawaii at Manoa.

#### article highlights

- When the first draft of the human genome was published, much of it was labeled junk DNA because its function wasn't understood.
- By the time the human genome had been entirely sequenced in 2022, the junk DNA theory was finally quashed because nonprotein-coding portions of the genome proved to be functional.
- Protein-coding genes are complex building instructions and are supplemented by vital RNA-coding genes that promote, enhance, and regulate a diversity of cellular functions.
- This genetic code was carefully written by Jesus Christ and showcases His profound handiwork.

## Pervasive Genome Functionality Destroys the Myth of Junk DNA

JEFFREY P. TOMKINS, Ph.D

n 2001, the first rough draft of the human genome was published in a collaborative effort between private industry and the public sector.<sup>1,2</sup> At that time, conventional scientists classified much of the human genome as junk DNA because they understood very little of the function of its three billion DNA letters. A more complete sequence of the human genome was published in 2004—but it was only about 92% finished.<sup>3</sup> Since that time, new long-range DNA sequencing technologies produce much longer DNA snippets. Researchers finally sequenced the missing areas in 2022 and closed the chromosomal gaps.<sup>4</sup>

va lad Ga

In the initial 2001 draft, scientists determined that only about 1%-2% of the genome contained protein-coding sequences. However, in 2007 the ENCODE project researchers published their first round of papers that only studied 1% of the genome for function.<sup>5</sup> The authors in the lead paper reported that their "studies provide convincing evidence that the genome is pervasively transcribed, such that the majority of its bases can be found in primary transcripts, including non-protein-coding transcripts."6 Five years later, a genome-wide study by EN-CODE researchers determined that at least 80% was biochemically active.7 Ewan Birney, ENCODE's lead analysis coordinator, stated concerning the remaining 20% that "it's likely that 80 percent will go to 100 percent,"

and "we don't really have any large chunks of redundant DNA. This metaphor of junk isn't that useful."8

In a 2021 *Nature* report subsection titled "Not Junk," the authors wrote,

With the HGP [human genome project] draft in hand, the discovery of non-protein-coding elements exploded. So far, that growth has outstripped the discovery of protein-coding genes by a factor of five, and shows no signs of slowing.<sup>9</sup>

In the same paper they stated,

Thanks in large part to the HGP, it is now appreciated that the majority of functional sequences in the human genome do not encode proteins. Rather, elements such as long non-coding RNAs, promoters, enhancers and countless gene-regulatory motifs work together to bring the genome to life.<sup>9</sup>

The current status of the human genome is near 100% functional with the following main takeaway points.

- 1. The entirety of the human genome is a spectacular and diverse storehouse of life-critical information. This alone refutes the concept of junk DNA.
- Protein-coding genes are essentially a basic set of instructions within a complex and vast repertoire of regulatory DNA sequences.

- 3. Many more RNA-coding genes exist compared to protein-coding genes, and they produce functional and structural RNA molecules that perform a wide variety of purposes in the cell.
- A vast amount of strategically placed regulatory switches and control elements exist all over the human genome to help regulate its function.

The mind-boggling complexity and intricate design of the human genome is exactly what the Bible refers to in Psalm 139:14: "I will praise You, for I am fearfully and wonderfully made; marvelous are Your works, and that my soul knows very well."

#### Reference

- Venter, J. C. et al. 2001. The Sequence of the Human Genome. Science. 291: 1304–1351.
- International Human Genome Sequencing Consortium. 2001. Initial Sequencing and Analysis of the Human Genome. Nature. 409: 860–921.
- International Human Genome Sequencing Consortium. 2004. Finishing the Euchromatic Sequence of the Human Genome. Nature. 431 (7011): 931–945.
- Nurk, S. et al. 2022. The Complete Sequence of a Human Genome. Science. 376: 44–53.
   Stanford University. ENCODE Project Overview. EN-
- Stanford University. ENCODE Project Overview. EN-CODE. Posted on encodeproject.org, accessed May 13, 2025.
- The ENCODE Project Consortium. 2007. Identification and Analysis of Functional Elements in 1% of the Human Genome by the ENCODE Pilot Project. *Nature*. 447 (7146): 779–816.
- The ENCODE Project Consortium. 2012. An Integrated Encyclopedia of DNA Elements in the Human Genome. Nature. 489 (7414): 57–74.
- Yong, E. ENCODE: The Rough Guide to the Human Genome. Discover Magazine. Posted on discovermagazine. com September 8, 2012.
- Gates, Â. J., et al. 2021. A Wealth of Discovery Built on the Human Genome Project—By the Numbers. *Nature*. 590: 212–215.

Dr. Tomkins is a research scientist at the Institute for Creation Research and earned his Ph.D. in genetics from Clemson University.

## Evolutionary Vestigial Features Worse Than Myth, a Scam

Image credit: GlobalP | iStock

ue to teachers' influence during the formative years of young people's lives, they can be a powerful force in spreading evolution to new generations. Teachers carry real authority. They are implicitly trusted to teach truth and are stronger by virtue of knowledge their students don't possess.

GULIUZZA, P.E.,

As a sophomore in high school biology, I knew nothing about my appendix. So when my trusted teacher told me that it was a vestigial organ, a useless leftover (i.e., a vestige) from my evolutionary ancestors, I believed it. Why wouldn't I? But I was fooled. It wasn't until much later that I learned the appendix plays a major role in digestive system health.<sup>2</sup>

A scam is when one person abuses the virtue of trust to deceive another person who's typically weaker in knowledge or experience and therefore vulnerable. People who've been scammed may also say that they've been duped, suckered, or tricked into allowing themselves to be taken advantage of. Vestigial organs are a large-scale scam used to dupe people into believing evolution. There's no other word to describe it.

The best tool against being suckered by a scam is knowledge. Much literature refutes every evolutionary biol-

#### article highlights

- Organs such as the appendix and traits like arms swinging while walking have long been labeled vestigial—features that served a purpose for supposed evolutionary ancestors but over time became functionless in their descendants.
- Evolutionists assumed the existence of vestigial features from the get-go, and for decades vestigial candidates were identified and used to support evolution simply because their function wasn't initially understood.
- When contrary research comes to light, evolutionists often ignore it and continue using the "vestigial" features to scam people into believing the evolutionary narrative.
- Every alleged vestigial organ and trait has been found to be fully functional.
- Our Creator, Christ Jesus, designed creatures fully formed from the beginning. Vestigial features are a scam.

ogist's alleged vestigial organ claim.3 Of more use, though, is the ability to recognize the pattern of how the vestigial organ scam is carried out.

As an illustration of this pattern, my biology teacher back in 1975 showed pictures of chimpanzees walking. I was told my armswinging-while-walking trait was an evolutionary leftover from the arm movements of my ape ancestors. I wasn't alone in hearing this. A report on research in 2009 shows that the vestigial arm-swinging story has been repeated for decades. It said, "It has long been argued that the way we move our arms when walking is a vestige of our ancestral life on all fours."4

We can now begin to recognize the key steps of evolutionary biologists' vestigial organs scam.

- 1. Identify an obscure body part or action that most people have essentially no knowledge of (e.g., appendix, tailbone, adenoids, thymus and pineal glands, arrector pili muscles causing goosebumps, plica semilunaris or "third eyelid," etc.).
- 2. Compound the ambiguity by selecting a characteristic, like human arm swinging, where the function isn't immediately intuitive as it is, for example, with an eye, a heart, or breathing.
- 3. Maintain obscurity by skipping over any experiments to rule out potential functions.
- 4. Declare that the part is a vestigial remnant of past evolution—since no one knows of a useful function.
- 5. Ask inexperienced people, "If organisms were designed, why would God put a useless \_\_\_\_ in them? Aren't \_\_\_\_ better explained by descent with modification?"
- 6. Play that note for decades until serious, experiment-oriented scientists test the evolutionary biologist's story and discover a useful function (or even more utility) that shows how nonsensical the story is.
- 7. Ignore those research findings until accumulating press coverage forces a quiet abandonment of that particular vestigial-feature story. Then claim that evolutionary biologists knew all along that it likely had some function.

Back to the arm swinging. Biomechanics experts tested the metabolic efficiency of human arm swinging and discovered that not swinging used 12% more energy, and walking with opposite-to-normal arm phasing caused the metabolic rate to increase by 26%.<sup>5</sup> The 2009 study concluded, "Rather than a facultative relic of the locomotion needs of our quadrupedal ancestors, arm swinging is an integral part of the energy economy of human gait."5 Steven Collins, study coauthor and a biomechanical engineer (not an evolutionary biologist) at Delft University of Technology in The Netherlands, said, "This puts to rest the theory that arm swinging is a vestigial relic from our quadrupedal ancestors."6

Vestigial features are not a real thing; rather, they are a concept that exists only in the mind of the beholder. It's an empty argument from ignorance that, surprisingly, isn't made by benchsitting evolutionary biologists but by their first-string players who keep the scam going.

But now you have the tools to recognize these scams. Try putting this critical vestigial-feature analysis to practice. Professor Jerry Coyne teaches,

Whales are treasure troves of vestigial organs. Many living species have a vestigial pelvis and leg bones...[from] their descent from four-legged ancestors...they're not connected to the rest of the bones, but are simply imbedded in tissue. They once were part of the skeleton, but became disconnected and tiny when they were no longer needed."7





How many elements of a scam can you identify in Coyne's claim? 8 You should now feel equipped and hopefully empowered with the knowledge to identify the essential elements of the vestigial organ scam and bust this myth for others.

- $According \ to \ evolution ists, a \ vestigial \ structure \ is \ a \ part \ remaining \ in \ organisms \ whose \ function$
- is diminished or totally lost from the part's original function in the ancestors of that organism. Guliuzza, R. J. 2016. Our Useful Appendix—Evidence of Design, Not Evolution. *Acts & Facts.* 45 (2): 12-14.
- Bergman, J. 2019. Useless Organs: The Rise and Fall of a Central Claim of Evolution. Tulsa, OK: Bartlett Publishing; Guliuzza, R. J. 2016. The "Poor Design" of Our Recurrent Laryngeal Nerve. Acts & Facts. 45 (4): 17-19; Guliuzza, R. J. 2017. Evolutionists Strike Out with Imaginary Junk DNA, Part 1. Acts & Facts. 46 (4): 16-19.
- 4. Sample, I. Out on a Limb: Science Unveils Secrets of Swing. The Guardian. Posted on guardian. co.uk July 29, 2009, accessed July 30, 2009.
- Collins, S. H., P. G. Adamczyk, and A. D. Kuo. 2009. Dynamic Arm Swinging in Human Walking. Proceedings of the Royal Society B. 276 (1673): 3679–3688.
- Connor, S. Mystery Solved—By Ministry of Silly Walks. Independent. Posted on independent. co.uk July 29, 2009.
- Coyne, J. A. 2009. Why Evolution Is True. New York: Viking, 60.
- Guliuzza, R. J. 2016. Are Whales and Evolution Joined at the Hip? Acts & Facts. 45 (3): 12-14.7-

Dr. Guliuzza is the president of the Institute for Creation Research. He earned his doctor of medicine from the University of Minnesota, his master of public health from Harvard University, and received an honorary doctor of divinity from Southern California Seminary. He served in the U.S. Air Force as 28th Bomb Wing flight surgeon and chief of aerospace medicine. Dr. Guliuzza is also a registered professional engineer and holds a B.A. in theology from Moody Bible Institute.



(17)

### BUSTING THE MYTH ABOUT LUCY

BRIAN THOMAS, Рн. D., CHRIS RUPE,

#### article highlights

- The famous Lucy fossil is considered a link in human evolution, but its discoverers initially thought the assembled bones came from different creatures.
- Eventually the fossil group was reassigned as a single new species—Australopithecus afarensis, an in-between ape and human version.
- In 2015, one of Lucy's vertebrae was identified as being from a baboon. Other bones match those of either humans

or apes.

The Lucy fossils are clearly from human and ape bones that got mixed together. Human evolution remains a myth.

ost folks consider our ape ancestry as established science, with Lucy as the main link. However, the story that we evolved from the same animal ancestors as today's apes flies in the face of both science and the Bible.

Those with a high view of Scripture need only read Genesis 2:5 to settle the matter: "There was no man to till the ground." There were no humans before Adam. Adam came not from an animal but from dust (Genesis 2:7).

Do fossils related to Lucy—the most popular human evolutionary ancestor candidate—demand that God got His history wrong? No. And certain fossil details vindicate creation.

> Lucy is the nickname that discoverer Donald Johanson's

team gave to a partial skeleton of assembled bone fragments extracted from a large, mixed bone bed in 1974.1 Lucy is believed to belong to the species Australopithecus afarensis, represented by over 400 fossil specimens. However, many people are unaware that before naming the new species, Johanson and his colleague attributed the total fossil assemblage to two different creatures. They reported, "The collection suggests that Homo and Australopithecus coexisted."2 In other words, the fossils consisted of a mixture of ape and human bones.

Lucy skeleton (AL 288-1), Paris

Image credit: 120, CC BY 2.5

But in 1978-1979, Johanson and a new partner reassigned the entire collection—including the human-shaped bones and fragments—to a single new species they named Australopithecus afarensis. This enabled them to portray australopiths as ancestors of modern humans.3

To this day, evolutionary researchers who assume Lucy and her kind came from a single species confidently speculate about the apelike skull and human-like walking ability. Others, however, recognize that the fossil collection includes both human and ape pieces, just as Johanson first acknowledged.4

What kind of primate do the non-human parts labeled A. afarensis belong to? Well, in 2015 a team identified one of Lucy's vertebrae as from a baboon—a 40-year-long oversight.<sup>5</sup> Other non-human bones found in Lucy's layers show ape qualities, including an adult male and female skull with a spine insertion angle consistent with knuckle-walking apes.<sup>6</sup> This angle is a diagnostic feature, distinguishing apes from humans.

> Foot design is another such feature. Apes' big toes are angled for grasping, whereas our big toes point forward for running.

> > One composite foot from the same locality that Johanson originally attributed to Homo bears classic features of modern human feet.7

So what conclusions do these fossil details yield? First, some clearly human fossils got lumped into a collection of bones attributed to Lucy's species. Second, clearly ape fossils got lumped into that same collection. The concept



Australopithecus afarensis chimp-like skull

Image credit: Public domain

of Lucy as our ancestor is merely a myth—long on imagination and short on good science. While the world may scoff at Genesis, these fossils fit God's creation of creatures according to their kinds.

#### References

- 1. Johanson, D. 1976. Ethiopia Yields First "Family" of Early Man. National Geographic. 150 (6): 790-811.
- Johanson, D. C. and M. Taieb. 1976. Plio-Pleistocene Hominid Discoveries in Hadar, Ethiopia. Nature. 260 (5549): 293-297.
- Johanson, D. C. and T. D. White. 1979. A Systematic Assessment of Early African Hominids. Science. 203 (4378): 321-330. Rupe, C. and J. Sanford. 2019. Contested Bones. Canandaigua, NY: FMS Publications, 113.
- Meyer M. R. et al. 2015. Lucy's Back: Reassessment of Fossils Associated with A.L. 288-1 Vertebral Column. Journal of Human Evolution. 85: 174-180.
- Kimbel, W. H. and Y. Rak. 2010. The Cranial Base of Australopithecus afarensis: New Insights from the Female Skull. Philosophical Transactions of the Royal Society B: Biological Sciences. 365 (1556): 3365-3376.
- DeSilva, J. M. et al. 2020. Associated Australopithecus afarensis Second and Third Metatarsals (A.L. 333-133) from Hadar, Ethiopia. Journal of Human Evolution. 146: 102848.

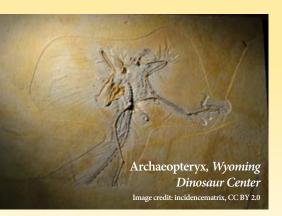
Dr. Thomas is a research associate at the Institute for Creation Research and earned his Ph.D. in paleobiochemistry from the University of Liverpool. Dr. Rupe is the founder of Back2Genesis and is a sedimentary geologist who earned his Ph.D. in earth sciences from Loma Linda University.





## Archaeopteryx, Myth of a Transitional Fossil

TIM CLAREY, PH.D.



n 1860, one year after the publication of Charles Darwin's *On the Origin of Species*, a wonderfully preserved fossil feather was discovered in the Jurassic Solnhofen Limestone in Germany. A year later, the first of 14 *Archaeopteryx* skeletons was found there. Named by paleontologist Hermann von Meyer, *Archaeopteryx* means "ancient wing," a name implying it was a bird. Because all of the specimens were found in layers well below any other bird fossil, *Archaeopteryx* was raised to the evolutionary icon status of first bird.

However, the feather impressions, claws on the wings, and a thin, bony tail caused many evolutionists to claim this was a transitional fossil between birds and dinosaurs. This view was further strengthened by the 1877 discovery of teeth in the beak of the second skeleton. Regardless, most scientists accepted it as essentially a bird—that is, until recently. Evolutionary scientists are now placing *Archaeopteryx* in the imaginary feathered dinosaur category.

#### Archaeopteryx Flew Like a Bird

Evolutionary paleontologist Alan Feduccia has pointed out that the feathers on *Archaeopteryx* are completely aerodynamic in structure, indicative of flight.<sup>3</sup> Furthermore, *Archaeopteryx* possessed a bird "wishbone" that was robust enough for muscle

#### article highlights

- Over 160 years ago, evolutionists heralded Archaeopteryx as an important missing link between dinosaurs and birds.
- But Archaeopteryx had flight feathers and skeletal anatomy like a bird.
- It also walked like a modern bird, not a theropod dinosaur.
- Archaeopteryx isn't a transitional fossil but rather an extinct type of bird created by Jesus at the beginning.

attachment and flight capability. In addition, the pubis bone in *Archaeopteryx* resembles that of birds living today and was probably used as a muscle attachment site for suprapubic muscles, which are designed to assist lung ventilation by moving the tail during roosting. By contrast, the pubis bone of crocodiles and bipedal dinosaurs functions as a muscle attachment site for diaphragmatic muscles.<sup>4</sup>

The flying issue was settled after scientists studied the cross-sectional geometry of wing bones from three *Archaeopteryx* specimens.<sup>4</sup> They concluded *Archaeopteryx* flew like a pheasant, with quick ascents, a short flight time, and running as a way to evade danger.

Our analyses reveal that the architecture of *Archaeopteryx*'s wing bones consistently exhibits a combination of cross-sectional geometric properties uniquely shared with volant [flying] birds, particularly those occasionally utilising short-distance flapping. In effect, *Archaeopteryx* appears to have flown by flapping its wings in short bursts.<sup>5</sup>

Evolutionary paleontologist Steve Brusatte stated, "I think it's a case closed now.... *Archaeopteryx* was capable of at least short bursts of powered flight."

It's quite clear *Archaeopteryx* was a fully designed bird that could fly directly from the ground. It possessed some unusual features for a bird, but it was a bird nonetheless.

Common pheasant

#### Archaeopteryx Walked Like a Bird

A study of the socket (acetabulum) where the femur (thigh bone) meets the pelvis points to another major dissimilarity between birds and dinosaurs. It's a powerful way to differentiate them. Why? Theropod dinosaurs had completely open holes in their hip sockets, and birds do not. *Archaeopteryx* was found to have a partially closed acetabulum, unlike that of dinosaurs.

Also, tail muscles connected to a theropod's femur pulled the leg back when the dinosaur walked. These muscles attached to the tail at the chevrons, small bones pointing downward from the tail vertebrae. Bonytailed birds like *Archaeopteryx* do not have large chevrons jutting down from the vertebrae on their tails. Also, birds' thighs are mostly immobile when they walk. They instead move their leg bones below the knee.

Simply put, *Archaeopteryx* is not a transitional fossil or a feathered dinosaur. It flew like a bird and walked like a bird. *Archaeopteryx* is simply an extinct type of bird that was created by Jesus in the beginning.

#### References

- Shipman, P. 1998. Taking Wing: Archaeopteryx and the Evolution of Bird Flight. New York, NY: Simon and Schuster, 13.
- *Lution of Bird Fught.* New York, NY: Simon and Schuster, 15.

  2. Johnson, J. S. 2021. Are Birds "Cousins" to Reptiles? *Acts & Easts* 50 (12): 11
- Feduccia, A. 2020. Romancing the Birds and Dinosaurs: Forays in Postmodern Paleontology. Irvine, CA: BrownWalker Press.
- Clarey, T. 2015. Dinosaurs: Marvels of God's Design. Green Forest, AR: Master Books, 127.
- Voeten, D. F. A. E. et al. 2018. Wing Bone Geometry Reveals Active Flight in Archaeopteryx. Nature Communications. 9, article 923
- Briggs, H. Archaeopteryx Flew Like a Pheasant, Say Scientists. BBC News. Posted on bbc.com March 18, 2018, accessed February 19, 2024.
- Feduccia, A. 2024. The Avian Acetabulum: Small Structure, but Rich with Illumination and Questions. *Diversity*. 16 (1): 20. 1–28.

Dr. Clarey is the director of research at the Institute for Creation Research and earned his Ph.D. in geology from Western Michigan University.

## The *Tiktaalik*Missing Link Myth

FRANK SHERWIN, D.Sc. (Hon.)



#### article highlights

- For over 20 years, a fossil named Tiktaalik has been held up as a missing link between sea and land animals.
- After Tiktaalik's discovery, tetrapod fossil tracks were found that evolutionists believed to be millions of years older than their supposed "missing link" predecessor.
- Reptile fossil tracks were discovered in 2025 that also predate *Tiktaalik* by supposedly millions of years.
- Additionally, Tiktaalik's anatomy doesn't match that of a tetrapod.
- The evolutionary concept of fish sprouting limbs and crawling out on land doesn't hold water, but the Genesis creation narrative still holds together.

n 2004, the paleontological community—and the world—was presented with what many evolutionists considered to be a dyed-in-the-wool missing link between fish and land animals (tetrapods). Evolutionary biologist Neil Shubin and evolutionary paleontologists Edward Daeschler and Farish Jenkins found an incomplete fossil of a creature called *Tiktaalik* on Ellesmere Island in northern Canada.¹ The specimen was supposedly 375 to 383 million years old (Devonian layers). Since then over 60 *Tiktaalik* specimens have been discovered.

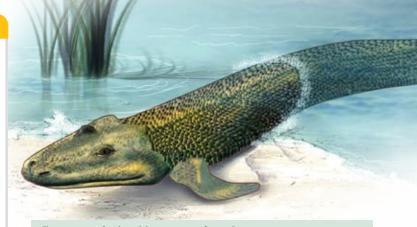


Illustration of Tiktaalik emerging from the water Image credit: Zina Deretsky, National Science Foundation, Public Domain

Tiktaalik is a unique lobe-finned fish designed with gills, fin rays, and fishy body scales. But could it "walk" on land? Since it's extinct, paleontologists can only speculate that it might have pushed itself up onto land like mudskippers do with their fins today. But like Elpistostege watsoni (an extinct lobe-finned fish), creationists believe Tiktaalik was simply a fish uniquely designed to live in shallow water near the edge of the sea.

The *Tiktaalik* missing link celebration was short-lived. Much to the dismay of the evolutionary community, a 2010 study in the journal Nature examined fossil track evidence that tetrapods were walking on open ground "397 million years ago" in what is now Poland.<sup>2</sup> This date is about 18 million years before the appearance of Tiktaalik based on the evolutionary narrative and so is much earlier than expected.

The paleontologists concluded these Polish trackways "force a radical reassessment of the timing, ecology and environmental setting of the fish-tetrapod transition, as well as the completeness of the body fossil record."2 But whatever made the tracks in Poland doesn't look transitional because it was walking with stout legs. How could fully formed land walkers have evolved from lobe-finned fish if they were walking around millions of years before the fishes' ancestors were alive?

In 2014, evolutionary science writer Colin Schultz stated that Tiktaalik had "mobile rear fins," not legs.3 In addition, a diagram of the fossilized pelvis—while elaborate and enlarged—clearly shows that it's not attached to the spinal column as one would expect with a true tetrapod.4

The late evolutionary paleontologist Jennifer Clack said, "The paired fins of Tiktaalik still retain fin rays: Loss of fin rays is part of the way in which limbs are distinguished from fins." It's no wonder bio-

chemist Michael Denton said, "The gap be-

tween the tetrapod limb and the fin remains." In 2024, Hickman et al. said, "evolutionary relationships of early tetrapod groups [e.g., Tiktaalik] remain controversial."7

Now a finding in Australia has only compounded the problem.

The origin of reptiles on Earth has been pushed back by an astonishing 40 million years. Fossilized tracks unearthed in Australia provide compelling evidence that reptilelike animals existed far earlier than previously thought.8

This caused evolutionary paleontologist John Long to say, "The implications of this discovery for the early evolution of tetrapods are profound."8

Evolutionary theory states lobe-finned fish came out of the shallow sea 420 to 360 million years ago, with amniotes and amphibians separating about 355 million years ago. This Australian slab of reptile-like animal tracks, dated to between 359 and 350 million years ago, challenges the widely accepted tetrapod crown group and amniote crown group timeline.9 Conventional research claims that tetrapods were walking on open ground 397 million years ago,2 but Tiktaalik didn't appear until around 18 million years after that! Clearly, Tiktaalik was a non-player in this evolutionary saga.

Tiktaalik needs to be removed from textbooks and museum displays where it's currently crowned as a creature with key transitional features. The evolutionary history of fish sprouting limbs and walking onto dry land is back to square one. In the meantime, the Genesis account of creation stands.

So God created great sea creatures and every living thing that moves, with which the waters abounded, according to their kind....And God made the beast of the earth according to its kind, cattle according to its kind, and everything that creeps on the earth according to its kind. And God saw that it was good. (Genesis 1:21, 25)

- Their report was published in Daeschler, E. B., N. H. Shubin, and F. A. Jenkins Jr. 2006. A Devonian Tetrapod-Like Fish and the Evolution of the Tetrapod Body Plan. *Nature*. 440 (7085):
- Niedzwiedzki, G. et al. 2010. Tetrapod Trackways from the Early Middle Devonian Period of Poland. Nature. 463 (7277): 43–48. Schultz, C. Ancient Walking Fish May Have Walked on All Fours. Smithsonian Magazine.

- Posted on smithsonianmag.com January 14, 2014.
  Shubin, N. H., E.B. Daeschler, and F. A. Jenkins Jr. 2014. Pelvic Girdle and Fin of *Tiktaalik roseae*. Proceedings of the National Academy of Sciences. 111 (3): 893–899.
  Clack, J. A. 2009. The Fish-Tetrapod Transition: New Fossils and Interpretations. Evolution: Education and Outreach. 2 (2): 213–223.
- Denton, M. 2016. Evolution: Still a Theory in Crisis. Seattle, WA: Discovery Institute Press, 159. Hickman, C. et al. 2024. Integrated Principles of Zoology. New York, NY: McGraw Hill, 557. Fossil Tracks Show Reptiles Appeared on Earth up to 40 Million Years
- Earlier. Flinders University. Posted on sciencedaily.com May 14, 2025.
- Long, J. et al. 2025. Earliest Amniote Tracks Recalibrate the Timeline of Tetrapod Evolution. *Nature*. 641 (8065): 1193–1200.

Dr. Sherwin is a science news writer at the Institute for Creation Research. He earned an M.A. in invertebrate zoology from the University of Northern Colorado and received an honorary doctorate of science from Pensacola Christian College.





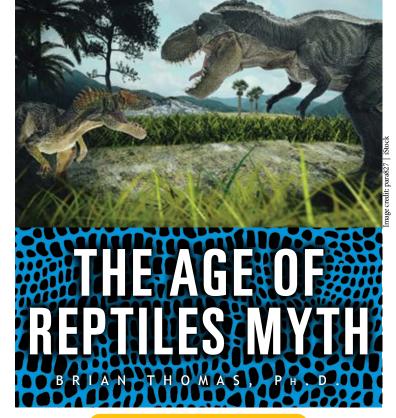
e hear about the Age of Reptiles, also called the Age of Dinosaurs, almost as early as we can understand the idea. Even kindergarteners might be taught that dinosaurs lived in some lost era long before humans came on the scene. However, compelling reasons indicate that this supposed Age of Reptiles is imposed upon the fossils rather than derived from them.

Historically, the Scriptures show no hint of such an age. The time between creation and the Flood is 1,656 years according to biblical chronology, and roughly 4,500 years have

passed since the Flood to today. This leaves no space for vast ages.

At first, early naturalists in Western culture had a high view of Scripture. They were happy to think of fossils as resulting from Noah's Flood after sin and death marred God's good creation (Genesis 3). But by the nineteenth century, some scientists were determined to thwart God and His Word by taking the opposite of an objective scientific approach and insisting on fossils having formed over ancient eons.<sup>1</sup>

For example, geologist Charles Lyell wrote in an 1830 letter, "I conceived the idea five or six years ago that if ever the mosaic geology could be set down without giving offence, it would be in an historic sketch." So he concocted that historical sketch. It spoke of vast ages that "set down" prior ideas that fossils have resulted from the Flood's stages. Darwin followed Lyell, and geology followed both, heedless of contrary evidence.



#### article highlights

- The Age of Reptiles is a supposed ancient era before mammals existed, a time when dinosaurs roamed Earth.
- The Bible describes no such age, and the fossil record doesn't support it.
- Preserved biomaterial in fossils also nullifies this supposed age.
- Like so much of the evolutionary story, the Age of Reptiles is fiction.

Aside from impacting science and historical interpretations, this also had theological implications. Can we say God happily oversaw this Age of Reptiles that involved mass deaths leaving countless fossils clustered around the globe? If so, then three unbiblical conclusions follow: God made mistakes in His history (contradicting His perfection), permitted eons of pointless animal deaths (contradicting His goodness), and offered a false threat to Adam by saying that if he sinned then death would begin

(contradicting His gospel).

Good news—evidence from fossils themselves erases the Age of Reptiles and thus any need to pay the heavy price of these conclusions. One clear evidence supporting the Flood is the presence of fossils themselves. Today, dead creatures rot or are scavenged. Where do organisms fossilize now? Almost nowhere.

Vertebrates in particular, like alligators, birds, and sharks, don't fossilize after dying. But these creatures plus turtles, water birds, crayfish, gar fish, and wetlands plants—*did* fossilize alongside now-extinct creatures like

pterosaurs, dinosaurs, and mosasaurs in the same layers around the world.<sup>3</sup> Noah's Flood buried them too deep and fast for decay to take effect or for scavengers to reach them. As receding floodwaters poured into today's oceans, sediments cemented into rocks to quickly preserve remains as fossils.

Another clear evidence against an Age of Reptiles comes from original biochemicals and even intact tissue fragments still found in many fossils. Our curated list now includes 130 technical descriptions of such finds, showing they occur worldwide and in any strata that have fossils.<sup>4</sup> If the Flood formed these layers only thousands of years ago, then it's no wonder they still contain original biomaterials.

The fact fossils exist worldwide, plus the youthful organics still within them, relegate any Age of Reptiles to myth and confirm the Flood as history.

#### References

- Thomas, B. 2020. The Plan to Replace God. Acts & Facts. 49

   1: 14–15.
- Lyell, C. 1881. Life, Letters, and Journals of Sir Charles Lyell. Bart. K. M. Lyell, ed. London: ohn Murray, 271.
- Clarey, T. 2020. Carved in Stone: Geological Evidence of the Worldwide Flood. Dallas, TX: Institute for Creation Research. 301–304.
- Thomas, B. and J. Tay. List of Biomaterials in Fossils. Google Doc. Posted on tinyurl.com/4htm54w9, accessed May 29, 2007.

both, needless of contrary evidence. Ing that if he sinned then death would begin

Dr. Thomas is a research associate at the Institute for Creation Research and earned his Ph.D. in paleobiochemistry from the University of Liverpool.

### **A Booming Generation**

REGINA KRIEG

And the king answered them roughly; and king Rehoboam forsook the counsel of the old men, and answered them after the advice of the young men....And Israel rebelled against the house of David unto this day. (2 Chronicles 10:13-14, 19, KJV)

fter the death of King Solomon, the Israelites turned to his son, Rehoboam, for relief from his father's heavy taxes and forced labor. The elders advised him to ease the people's burdens, but instead King Rehoboam listened to his friends. He treated the people even more harshly, and as a result, the kingdom split.

In the midst of tumultuous times, Rehoboam's dismissal of wise counsel led to rebellion. Even today, we find ourselves navigating challenges and needing insight. Just like people in Old Testament days, we can glean invaluable wisdom from those with greater experience.

Consider this: approximately 76 million individuals were born in the U.S. after World War II through the mid-1960s, a generation

known as baby boomers.1 These unique people shaped culture and endured profound historical changes. They diverged from their parents, the Greatest Generation, and adopted their own methods of doing things. They created bucket lists, embraced getting older ("age is just a number"), and developed meaningful ways to interact in their communities. Many have even seamlessly integrated into the new technological era.

Baby boomers also witnessed the decline of the defined-benefit pension, the rise of defined-contribution plans, and an increase in disposable income. They're more likely than their parents to hold a college degree and travel the world. Many were also raised in church. During the 1950s through the '70s, local congregations saw record numbers of children in Sunday school.2

As boomers live longer, try new things, and transition into retirement, they're seeking to make a lasting impact.3 Whether through political engagement, ministerial endeavors, or personal giving of their time and resources, many have dedicated their lives to serving the Lord Jesus both locally and globally. These remarkable individuals



Image crredit: public domain

have much to share, and we can greatly learn from our brothers and sisters in Christ as they leave a legacy of faithfulness.

For decades, baby boomer supporters have played a vital role in advancing the mission of the Institute for Creation Research. Their generous involvement fueled scientific research, the growth of the ICR Discovery Center, and the expansion of our publications, media, and events. Their faithful giving enables ICR to freely provide Acts & Facts and Days of Praise and proclaim the truth of biblical creation around the world.

As we celebrate the lasting impact of this extraordinary genera-

tion, we also look to the future with great excitement and anticipation. We invite you to join us in continuing this legacy of support. To explore ways that you can financially contribute, visit ICRgiving.org. Your involvement, whether through donations, volunteering, or spreading awareness, plays a crucial role in our efforts.

We extend heartfelt gratitude to all our supporters, especially those from the baby boomer generation, for their unwav-

ering dedication to ICR's work. Together, let us press on, inspired by the wisdom of the past and encouraged by the hope of the future. Boomers truly are a "booming" generation! May the Lord Jesus bless you abundantly as you continue to bless others.

Join us for a free Estate Planning Work-

shop on Saturday, October 11, 2025,

at the ICR Discovery Center in Dallas,

Texas. Learn from trusted experts and

helpful take-home resources. Space is

limited, so reserve your spot at ICRDis-

coveryCenter.org/Special-Events today!

- Pollard, K. and P. Scommegna. Just How Many Baby Boomers Are There? Population Reference Bureau. Posted on prb.org April 16, 2014.
- Roof, W. C. 1993. A Generation of Seekers: The Spiritual Journeys of the Baby Boom Generation. San Francisco, CA: HarperCollins Publishers.
- Arias, E. et al. Vital Statistics Rapid Release, Report No. 23: Provisional Life Expectancy Estimates for 2021. National Center for Health Statistics, Centers for Disease Control and Prevention, U.S. Department of Health and Human Services, August 31, 2022.

Ms. Krieg is the donor relations and stewardship manager at the Institute for Creation Research.



Gift Planning

Charitable Gift Annuitie

Wills and Trusts



ICR is a recognized 501(c)(3) nonprofit ministry, and all gifts are tax-deductible to the fullest extent allowed by law.



### ICR INSTITUTE SCREATION RESEARCH

P. O. Box 59029 | Dallas, TX 75229 | ICR.org

#### Project Artifact: The Spear

**\$18.99** | 2197

Written by Trey Bowling | Illustrated by Lori Fausak

The year is AD 2257, and scientist Dr. Gideon Gates believes he's found the key to unlocking Earth's past: an Al-powered initiative called Project Artifact. But when he examines an ancient spear, the software provides an unexpected background, leading him to question everything he knows.

Join Gates as he begins a perilous quest for answers in the midst of injustice, top-level secrecy, and unforeseen enemies. Will the truth prevail in a world that's determined to suppress it? In this graphic novel written by Trey Bowling and illustrated by Lori Fausak, readers will be captivated by the suspenseful dialogue and eye-catching artwork that proclaims the historical reliability of Scripture.





Visit ICR.org/ProjectArtifact to order your copy today!

Join the author, Trey Bowling, on September 18 at a **special book signing event** at the ICR Discovery Center. Visit **ICRDiscoveryCenter.org/ Special-Events** for details.

Want to become a Quanticorps insider? Visit **ProjectArtifact.net** for bonus material including book trailers, character bios, merchandise, and more!