

ACTS & FACTS

INSTITUTE FOR
CREATION RESEARCH

ICR.org

APRIL 2019

VOL. 48 NO. 4



Theophanies in the Old Testament

page 5

Marine Fossils Mixed with Hell Creek Dinosaurs

page 10

Climate Alarmism and the Age of the Earth

page 11

Recent Humans with Archaic Features Upend Evolution

page 15

Buy All Four DVD Sets and Save \$30!

This pack includes all four major DVD series produced by ICR

- *Unlocking the Mysteries of Genesis*
- *Made in His Image*
- *Uncovering the Truth about Dinosaurs*
- *The Universe: A Journey Through God's Grand Design!*

\$149.99
~~\$179.96~~

PDICRDVDS

SCIENCE FOR KIDS!

\$8.99
BABDEUCF

ANIMALS BY DESIGN
Exploring Unique Creature Features

\$8.99
BDGMC

DINOSAURS
God's Mysterious Creatures

\$8.99
BSCMH

SPACE
God's Majestic Handiwork

GOD MADE GORILLAS, GOD MADE YOU

\$7.99
BGMGGMY

BIG PLANS FOR HENRY

\$8.99
BBPFH

Call **800.628.7640** or visit **ICR.org/store** | Please add shipping and handling to all orders. Offer good through April 30, 2019, while quantities last.

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.

EXECUTIVE EDITOR

Jayne Durant

SENIOR EDITOR

Beth Mull

EDITORS

Michael Stamp
Truett Billups
Christy Hardy

DESIGNER

Dennis Davidson

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

Copyright © 2019

Institute for Creation Research

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



5



10



11



15



22

feature

5 Theophanies in the Old Testament

research

10 Marine Fossils Mixed with Hell Creek Dinosaurs

TIM CLAREY, PH.D.

impact

11 Climate Alarmism and the Age of the Earth

JAKE HEBERT, PH.D.

back to genesis

15 Recent Humans with Archaic Features Upend Evolution

JEFFREY P. TOMKINS, PH.D.

17 New Distributed Problem-Solving Model for Population Adaptation

PHIL B. GASKILL AND

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

creation q & a

20 Are Fossils Just Rocks Shaped like Bones?

BRIAN THOMAS, M.S.

apologetics

21 Termite Skyscrapers Hidden in Plain View

JAMES J. S. JOHNSON, J.D., TH.D.

stewardship

22 T. rex, Tours, and Testimonies

HENRY M. MORRIS IV



Changing Lives One at a Time

I recently worked a booth at a Dallas women’s conference, where ICR sponsored a table. We provided free books, magazines, devotionals, and information to anyone who stopped by our display.

That first evening, my colleagues and I visited with dozens of women. The next day, a woman returned to our table and told us she had picked up our *Creation Q&A* booklet the night before, and she wondered if she could have more copies. She said she used it to share the gospel with another woman and that the woman had prayed to receive Christ. God used the booklet to change someone’s life, and she wanted more to share with others. What’s interesting about that 48-page booklet is that it doesn’t have a dedicated gospel presentation in it—it simply shows how science confirms what the Bible tells us about creation and assures the reader they can trust God’s Word.

I don’t know details about the woman who accepted Christ, but I’m guessing she’s like many of the people we encounter who have doubts about God because they think the Bible doesn’t fit with science. We’ve discovered that when we show people that scientific evidence lines up with what the Bible says, then they are free to accept that God’s Word is true in what it says about salvation as well as science. The information we share at events and in our resources often removes the obstacles that have somehow kept people from trusting God.

Creation Q&A is just one of the many resources we offer to help others understand how science confirms Scripture. Our 12-DVD series *Unlocking the Mysteries of Genesis* is a good introductory presentation that provides information about dinosaurs, the Flood, the Ice Age, the age of the universe, and more. We also offer a corresponding student workbook. Our *Guide to...* book series provides an easy-

to-read approach to creation topics with plenty of illustrations in a beautiful format. Begin with *Guide to Creation Basics* to get a good foundation. If you have children, start with the Science for Kids series or the Little Creation Books for your preschoolers.

Perhaps you’ve noticed that the Creation Q&A articles in *Acts & Facts* are written at a level for general readers. These engaging columns answer many of the basic questions people have when they’re first introduced to creation science, such as this month’s focus on what fossils are and how they fit with a young earth (“Are Fossils Just Rocks Shaped like Bones?” page 20).

And our serious science articles include highlights to help you navigate some of the more complicated information. These articles present current scientific research on important issues in the creation-evolution debate, such as Dr. Jeff Tomkins’ discussion of recent studies that refute the human evolution story (“Recent Humans with Archaic Features Upend Evolution,” page 15) and Dr. Jake Hebert’s examination of how old-earth beliefs influence the climate change debate (“Climate Alarmism and the Age of the Earth,” pages 11-14).

Through our conferences, our social media posts, our weekly online news articles, our publications, and more, we work to equip believers with the knowledge they need to challenge the misinformation that is rampant in our world. Our goal is to clearly communicate the message that you can trust God’s Word, and He uses it to change people, one life at a time.

Jayme Durant
EXECUTIVE EDITOR



Theophanies

in the Old Testament

The Creator at Work in His World

article highlights

- Jesus Christ existed before His birth in Bethlehem—He is our Creator.
- A human's encounter with God before Jesus' incarnation is known as a theophany.
- Jesus visited multiple people in the Old Testament, many times appearing in visible form.
- The ICR Discovery Center will feature seven of the visible theophanies to highlight the Creator's work throughout history.

As Easter approaches, we tend to focus our reflections on the life, death, and glorious resurrection of Christ. We even mark the timeline of history by whether events happened before (BC) or after (AD) Christ's birth. But Christ's existence didn't begin with His time on Earth. The apostle John emphasizes this when he begins his gospel account.

In the beginning was the Word, and the Word was with God, and the Word was God. He was in the beginning with God. All things were made through Him, and without Him nothing was made that was made. (John 1:1-3)

The apostle Paul also affirms this truth in the book of Colossians.

He 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....And He is before all things, and in Him all things consist. (Colossians 1:15-17)

The Lord Jesus Christ was present at the beginning of creation—He was and is our Creator. His pre-existence is further affirmed by His many appearances docu-

mented throughout the Old Testament. *Theophany* is a theological term that refers to an encounter with God prior to Christ's incarnation. There are over 50 possible theophanies recorded throughout the Old Testament, primarily concentrated in Genesis, in the Exodus and conquest events, in Judges, and in the prophets.

Generally speaking, theophanies take three primary forms:

- 1) Visible manifestations most often involve the Angel of the Lord appearing in human form, but could also include other visible encounters such as the fire and smoke on Mount Sinai.
- 2) Auditory manifestations are indicated by the many "and the LORD said unto..." statements found throughout the Old Testament, but also include unique encounters like the "still small voice" that spoke to Elijah in the cave (1 Kings 19:12).



- 3) Visions and dreams also exhibit theophany characteristics, such as Jacob's ladder dream (Genesis 28:12), Daniel's man in linen vision (Daniel 10–12), and Zechariah's man among the myrtle trees vision (Zechariah 1:7-17). However, whether or not visions and dreams should be considered theophanies is controversial among scholars since they involve a metaphysical or spiritual presence rather than a physical one.

John 1:18 tells us that "no one has seen God at any time." Does this contradict the many visible manifestations mentioned throughout the Old Testament? Not at all, for John also explains in the same verse that "the only begotten Son, who is in the bosom of the Father, He has declared Him." In other words, whenever the omnipresent, invisible God has chosen to appear to people, He has done so in the person of His Son, Jesus Christ.

Let's take a moment to review seven visible manifestations that clearly represent physical encounters with the pre-incarnate Christ. As you reflect on these miraculous events, you'll notice that theophanies documented in the Bible share five similar characteristics:

- ✦ A God-initiated encounter
- ✦ Declarations of deity

- ✦ Miraculous actions and knowledge
- ✦ Comforting statements
- ✦ Worship of God as a result of the encounter

The Lord Appears to Abraham (Genesis 18:1-15)

In this passage, it says that "the LORD appeared to [Abraham] by the terebinth trees." Note Abraham's immediate reaction. He looked and saw three men standing near him. He "ran...to meet them, and bowed himself to the ground" (vv. 1-2). It seems plausible that Abraham may have recognized the pre-incarnate Lord Jesus Christ from previous encounters in Genesis 12:7 and 14:18-20.



Only one of these men—the Lord Jesus—spoke with authority. Not only does He prophesy that Sarah will have a son in her old age (v. 10) but He knows that Sarah privately laughed in her tent when she overheard the news. He responds by asking, "Why did Sarah laugh?...Is anything too hard for the LORD?" (vv. 13-14).

The Man Wrestles with Jacob (Genesis 32:24-30)

Jacob spent the night alone as he was waiting to meet his estranged brother Esau. The passage says "a Man wrestled with him until the breaking of day" (v. 24). When Jacob continued fighting after long hours of struggle, the Man touched the socket of Jacob's hip and instantly maimed him (v. 25). Still, Jacob refused to release Him, even while experiencing excruciating pain. Jacob cried out, "I will not let You go unless You bless me!" (v. 26).

The Man said, "Your name shall no longer be called Jacob, but Israel; for you have struggled with God and with men, and have prevailed" (v. 28). And Jacob, recognizing the divinity of Christ, the Man



with whom he wrestled, responded with a bold proclamation: “For I have seen God face to face, and my life is preserved” (v. 30).

The Angel of the Lord Speaks from a Burning Bush (Exodus 3:2-10)

Moses, a fugitive from Egypt, was tending to his father-in-law’s flock when the “Angel of the LORD appeared to him in a flame of fire from the midst of a bush....The bush was burning with fire, but the bush was not consumed” (v. 2). God called to Moses from the bush, telling him, “Do not draw near this place. Take your sandals off your feet, for the place where you stand is holy ground” (v. 5).

We know this was no ordinary angel because He clearly revealed His identity to Moses: “I am the God of your father—the God of Abraham, the God of Isaac, and the God of Jacob.” The passage tells us that Moses “was afraid to look upon God” as the Lord called him to lead the Israelites out of Egypt (vv. 6-10).

Many artistic interpretations of this event depict the flaming bush that did not burn, but the text clearly states that the Angel of the



Lord was visible to Moses. It is possible that the *shekinah* glory of God emanating from the Angel—the pre-incarnate Christ—standing in the midst of the bush gave the appearance of fire.

The Angel of the Lord Confronts Balaam (Numbers 22:22-35)

When Balaam saddled his donkey and headed to Moab with instructions from King Balak to curse Israel, the Bible tells us that the “Angel of the LORD took His stand in the way as an adversary against him” (v. 22). Balaam’s donkey did everything she could to avoid crossing paths with the Lord Jesus Christ, who planned to kill Balaam

as he passed by. The donkey crossed over into a field, pushed herself against a wall, and even lay down in the middle of the road.

Balaam, unaware of the Lord’s presence, struck the donkey for her disobedience to his commands. Then, “the LORD opened the mouth of the donkey, and she said to Balaam, ‘What have I done to you, that you have struck me these three times?...Am I not your donkey on which you have ridden, ever since I became yours, to this day? Was I ever disposed to do this to you?’” (vv. 28-30).¹ Animals’ mouths, tongue muscles, and brains are not designed for human speech, so supernatural intervention was absolutely necessary for this to happen.

“The LORD opened Balaam’s eyes, and he saw the Angel of the LORD standing in the way with His drawn sword in His hand; and he bowed his head and fell flat on his face” (v. 31). God has the power to use whatever means necessary to accomplish His will. In this case, the Lord used a wicked and perverse false-prophet-for-hire (v. 32) to bless and protect His chosen people.

Commander of the Lord’s Army Appears to Joshua (Joshua 5:13-15)

After the Israelites were delivered out of Egypt and had wandered in the wilderness for 40 years, God charged Joshua to lead the next generation to conquer Canaan. When Joshua was near Jericho, he “lifted his eyes and looked, and behold, a Man stood opposite him with His sword drawn in His hand.” Joshua approached the Man and asked, “Are You for us or for our adversaries?” (v. 13).

“So [the Man] said, ‘No, but as Commander of the army of the LORD I have now come.’ And Joshua fell on his face to the earth and worshiped” (v. 14).

The Man, the Lord Jesus Christ, let Joshua know exactly who



was and is in charge. “Then the Commander of the LORD’s army said to Joshua, ‘Take your sandal off your foot, for the place where you stand is holy.’ And Joshua did so” (v. 15). Joshua’s encounter with Christ encouraged him to begin the conquest of Canaan and fulfill God’s promise to Abraham (Genesis 12:7).

The Angel of the Lord Visits Manoah and His Wife (Judges 13)

The Lord Jesus Christ appeared again in the time of the Judges during a 40-year period when Israel was oppressed by the Philistines. He visited an unnamed woman who had been unable to bear children for many years: “Indeed now, you are barren and have borne no children, but you shall conceive and bear a son. . . .and no razor shall come upon his head, for the child shall be a Nazirite to God from the womb; and he shall begin to deliver Israel out of the hand of the Philistines” (vv. 3-5). This prophecy foretold the life of Samson.

When the woman told her husband, Manoah, about the encounter, Manoah prayed that the “Man of God” would come again and teach them what to do (v. 8). The Lord Jesus visited and spoke with both of them. Manoah offered to feed his guest. “The Angel of the LORD said to Manoah, ‘Though you detain Me, I will not eat your food. But if you offer a burnt offering, you must offer it to the LORD.’ (For Manoah did not know He was the Angel of the LORD)” (v. 16).

“So Manoah took the young goat with the grain offering, and offered it upon the rock to the LORD. And He did a wondrous thing while Manoah and his wife looked on—it happened as the flame went up toward heaven from the altar—the Angel of the LORD ascended in the flame of the altar!” (vv. 19-20).

Manoah and his wife fell on their faces to the ground. “When the Angel of the LORD appeared no more to Manoah and his wife, then Manoah knew that He was the Angel of the LORD. And Manoah said to his wife, ‘We shall surely die, because we have seen God!’” (vv. 21-22). But she contended that God would not have accepted their burnt offering or foretold Samson’s birth had He intended to kill them.

“So the woman bore a son and called his name Samson; and the child grew, and the LORD blessed him” (v. 24).

The Fourth Man in the Fire (Daniel 3:16-28)

King Nebuchadnezzar commanded the people of Babylon to bow down to his idol at the trumpet’s sound. Shadrach, Meshach, and Abed-Nego, exiles from Israel, refused to worship anyone but the Lord. Their refusal angered the king, and he commanded they be thrown into a fiery furnace, a seemingly unlikely place for a glorious theophany.

“Then King Nebuchadnezzar was astonished. . . ‘Did we not cast three men bound into the midst of the fire? . . . Look! . . . I see four men loose, walking in the midst of the fire; and they are not hurt, and the form of the fourth is like the Son of God!’” (vv. 24-25). The king called the men to come out of the fire and discovered that “the

hair of their head was not singed nor were their garments affected, and the smell of fire was not on them” (v. 27).

Scholars debate whether the fourth man in the fire was the pre-incarnate Christ or one of God’s mighty angels. Nebuchadnezzar described the man as one “like a son of the gods” [literal translation] and later calls him “His Angel.” But the dramatic imagery of this event, followed by praise for God by a pagan king, is undeniable.

“Nebuchadnezzar spoke, saying, ‘Blessed be the God of Shadrach, Meshach, and Abed-Nego, who sent His Angel and delivered His servants who trusted in Him, and they have frustrated the king’s word, and yielded their bodies, that they should not serve nor worship any god except their own God’” (v. 28).

When God enacts a miracle, He supernaturally controls all details so that His power is unmistakable, and there is no other explanation!

Old Testament Theophanies in the Discovery Center

The Creator has been at work in His creation throughout Earth’s history. In these seven theophanies, we see the Lord Jesus Christ visiting people during significant times in their lives, meeting their needs, revealing His character, and intervening in a personal way.

These events will be featured in the ICR Discovery Center for Science and Earth History. The goal of this center is to glorify and reveal our Creator. So, after the main exhibits displaying the scientific evidence for God’s creation, visitors will be introduced to the Creator Himself. The scenes of the Old Testament theophanies will precede a dramatic hologram-based exhibit of the life of Christ, who revealed Himself as never before when He was born in the flesh and walked this earth for 33 years. His perfect, sinless life culminated in a horrific death on the cross. He paid the penalty for our sins, so that we could become children of God.

Just as Christ’s existence didn’t begin with His earthly birth, neither did it end with His earthly death. After three days, He rose from the grave, ascended to heaven, and sat down at the right hand of God, where He ever lives to intercede for us (Mark 16:19; Hebrews 1:3; 7:25). God’s presence now lives in each believer through the Holy Spirit. What a joy it is to know that the Holy Spirit of God is *always* with us (John 14:16-17; 16:7-14).

The God who has appeared throughout all of history, whose work we see in creation, and whose sacrifice assured our salvation will appear again one day before our eyes. In that day, the whole world will respond in worship and praise to Him (Philippians 2:9-11). What a day that will be! ☞

Reference

1. In his study Bible notes, Dr. Henry Morris commented that Balaam’s apparent lack of surprise at hearing the donkey speak “was probably due both to his direct encounter with God the previous night (Numbers 22:20) and also his unthinking rage, accompanied by physical pain, caused by the stubbornness of the animal.” Morris, H. M. 2012. *The Henry Morris Study Bible*. Green Forest, AR: Master Books, 278.

Portions of this article were adapted from Sunday school materials prepared by Henry M. Morris IV, ICR Director of Operations.

APRIL

3-7

Redding, CA | Alpha Omega Conference | (J. Johnson) 530.221.4275

APRIL

7

Dallas, TX | Highland Park United Methodist Church | (F. Sherwin) 214.521.3111

APRIL

14

Dallas, TX | Highland Park United Methodist Church | (J. Johnson) 214.521.3111

APRIL

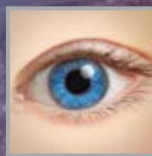
27

Westby, WI | Creation Family Camp at Living Waters Bible Camp | (R. Guliuzza) LWBC.org or 608.634.4373

SAVE THE DATE

MADE IN HIS IMAGE

A Creation Apologetics Conference



Randy J. Guliuzza, P.E., M.D.



Jeffrey P. Tomkins, Ph.D.

Oceanside, CA

Calvary Chapel Oceanside

760.754.1234

JULY

27-28

For information on event opportunities, call **800.337.0375** or email **Events@ICR.org**

Marine Fossils Mixed with Hell Creek Dinosaurs

Recently, a new species of shark was found at the site where *T. rex* “Sue” was extracted.¹ While this didn’t surprise Flood geologists,² it required some special pleading by evolutionary scientists to explain away another apparent marine animal in the “wrong” place.

Sue was discovered in South Dakota in a sedimentary rock unit known as the Hell Creek Formation (HCF).¹ This formation also covers parts of North Dakota and Montana and resides near the top of a massive pile of sedimentary rocks called the Williston Basin.

A few years ago, I researched the HCF and showed that it was encapsulated, top and bottom, by sedimentary rocks that even secular scientists agree are marine in origin. Figure 1 shows the Upper Cretaceous and Paleogene stratigraphic units in the Williston Basin, with the marine rocks shaded in gray.³

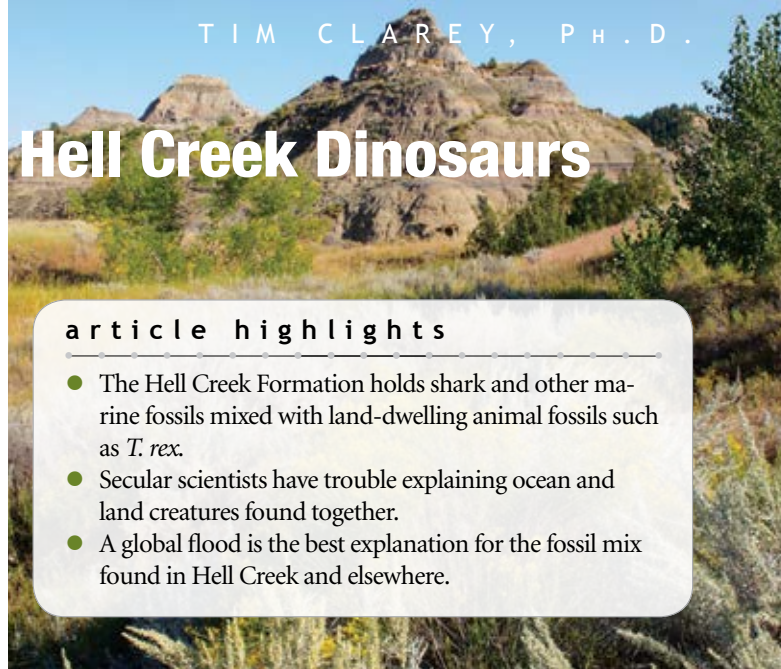
Secular scientists have found numerous marine invertebrate fossils throughout the HCF.⁴ Using the informal subdivisions identified by earlier scientists,^{5,6} they determined there were marine fossils in three of the four subunits (shown by the letter “M” in Figure 1). Brackish-water and marine bivalves called *Crassostrea* (oysters) and *Corbicula* (clams), gastropod *Pachymelania* (snails), and the crustacean trace fossil *Ophiomorpha* were common throughout the formation.

Stratigraphy – Central Dakotas				
System	Series	Formation	Member-Lithofacies	
			West	East
Paleogene	Paleocene	Fort Union	Sentinel Butte Member	
			Tongue River Member	
Ludlow Member	Cannonball Member			
Cretaceous	Upper Cretaceous	Hell Creek	“Pretty Butte”	
			M “Huff”	
			“Fort Rice”	M
			Brelien Member	
			“Crowghost”	M
		Fox Hills	Linton Member	
			Iron Lightning Member	Colgate Lithofacies
				Bullhead Lithofacies
			Timber Lake Member	
		Trail City Member		

A variety of animal groups are found in the Upper Cretaceous HCF and in the overlying Paleogene Fort Union Formation.³ The data show multiple examples of mixed land, freshwater, and marine influences in the upper HCF. These results mesh well with the marine influence found in North Dakota.⁴

Surprisingly, in two volumes of papers published on the HCF in the last 20 years, little is mentioned of the occurrences of five (now six) species of sharks, the 14 species of fish, and the bivalves that indicate a marine influence on the formation.⁷ Secular scientists either ignore these findings⁴ or dismiss them as freshwater sharks and

Figure 1. Stratigraphic units in the Williston Basin of the Dakotas, showing the formations and members above and below the Hell Creek Formation. The shaded units are secular-accepted marine deposits. The white units are purported to be terrestrial deposits. The “M” designates layers with fossils providing a positive identification of marine taxon.⁴



article highlights

- The Hell Creek Formation holds shark and other marine fossils mixed with land-dwelling animal fossils such as *T. rex*.
- Secular scientists have trouble explaining ocean and land creatures found together.
- A global flood is the best explanation for the fossil mix found in Hell Creek and elsewhere.

fish,¹ in spite of the more reasonable conclusion that they represent marine organisms.

The bottom line is that the Fox Hills Formation directly below the HCF is accepted as a marine deposit (Figure 1), and the unit immediately above the HCF, the Cannonball Member of the Fort Union Formation, is accepted as a marine deposit, yet Hell Creek itself is claimed to be terrestrial solely because it contains dinosaur fossils. But it’s filled with marine fossils from top to bottom.

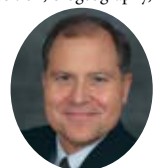
This is nothing new for the global rock record. We see this same fossil mix across all continents. Even most European Cretaceous dinosaurs are found not just mixed with marine fossils but in actual marine rocks like chalk and limestone.⁸ *Spinosaurus*, the largest theropod dinosaur ever discovered, was found in Morocco with car-size fossils of coelacanth fish, which today are only found in the deep ocean.⁹

The best explanation of the mix of land and marine organisms is not fluctuating sea levels as most secularists claim, but a massive global flood that covered all the continents just as Genesis describes. ☞

References

1. Gates, T. A., E. Gorscak, and P. J. Makovicky. New sharks and other chondrichthyans from the latest Maastrichtian (Late Cretaceous) of North America. *Journal of Paleontology*. Published online on Cambridge.org January 21, 2019.
2. Thomas, B. A. *T. rex* Swimming with Sharks? *Creation Science Update*. Posted on ICR.org February 19, 2019.
3. Clarey, T. L. 2015. The Hell Creek Formation: The Last Gasp of the Pre-Flood Dinosaurs. *Creation Research Society Quarterly*: 51 (4): 286-298.
4. Hartman, J. H. and J. I. Kirkland. 2002. Brackish and marine mollusks of the Hell Creek Formation of North Dakota: Evidence for a persisting Cretaceous seaway. In *The Hell Creek Formation and the Cretaceous-Tertiary Boundary in the Northern Great Plains: An Integrated Continental Record of the End of the Cretaceous*. J. H. Hartman, K. R. Johnson, and D. J. Nichols, eds. Geological Society of America Special Papers. 361: 271-296.
5. Frye, C. I. 1967. The Hell Creek Formation in North Dakota. Ph.D. dissertation. Grand Forks, ND: University of North Dakota, 411 p.
6. Frye, C. I. 1969. Stratigraphy of the Hell Creek Formation in North Dakota. *North Dakota Geological Survey Bulletin*. 54: 65 p.
7. Hartman, J. *The Hell Creek Formation and the Cretaceous-Tertiary Boundary in the Northern Great Plains*. Wilson, G. P. et al. 2014. *Through the End of the Cretaceous in the Type Locality of the Hell Creek Formation in Montana and Adjacent Areas*. Geological Society of America Special Papers 503.
8. Csiki-Sava, Z. et al. 2015. Island life in the Cretaceous—faunal composition, biogeography, evolution, and extinction of land-living vertebrates on the Late Cretaceous European archipelago. *ZooKeys*. 469: 1-161.
9. Ibrahim, N. et al. 2014. Semiaquatic adaptations in a giant predatory dinosaur. *Science*. 345 (6204): 1613-1616.

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





CLIMATE ALARMISM AND THE AGE OF THE EARTH

article highlights

- Many secular scientists believe Earth's climate is extremely sensitive to changes in atmospheric carbon dioxide because the astronomical theory, built on old-earth assumptions, demands it.
- ICR research has shown that evidence for the astronomical theory is weak to nonexistent.
- Scientists use computer models to argue for high climate sensitivity, but these models likely contain flawed assumptions.
 - It appears Earth's climate has a low sensitivity to change. We don't need to buy in to climate change alarmism.

Many evangelical Christians think global warming is a serious issue that demands drastic action.¹ At the Institute for Creation Research we tend to be skeptical of the claim that increasing amounts of carbon dioxide (CO₂) will cause Earth to overheat.² Climate change proponents say their case is built on scientific evidence. However, old-earth beliefs actually make a major contribution to climate change alarmism.

Climate Sensitivity

The real issue in the climate change debate is climate sensitivity.³ If the amount of CO₂ in the atmosphere were to double while everything else stayed the same, the increase in global average surface temperatures would be small, only about 1°C (less than 2°F).⁴

However, our climate is complicated, and a change in one thing

inevitably causes a response somewhere else. Some of these responses are called *negative feedbacks*, which minimize or oppose a warming tendency. On the other hand, *positive feedbacks* enhance the initial warming. If climate sensitivity is high, then the effect of positive feedbacks will dominate and there will be a large increase in temperature after the climate has settled down. But if climate sensitivity is low, then the negative feedbacks will tend to balance the positive feedbacks, resulting in a smaller temperature increase.

Scientists worried about climate change tend to think climate sensitivity is very high. Those who are less concerned believe climate sensitivity is low. If we ignore questionable research, there are two main reasons some researchers think climate sensitivity is high.

Computer Climate Models

The first reason arises from predictions made by computer climate models. Many of these models have predicted large amounts of warming. However, the climate is a complex system, and scientists don't fully understand it. So, these computer models use simplifying assumptions, premises that may be in error.⁵ In fact, there's good reason to think these assumptions *are* in error. Most climate models have, in the past, predicted more warming than we later actually observed.²

One can also use basic physics to estimate climate sensitivity. This is hard to do, but it theoretically should be more reliable than the results of computer models. Interestingly, one such recent study suggests that climate sensitivity is relatively low.^{5,6}

The Astronomical Theory

The second argument for high climate sensitivity comes from old-earth beliefs about past climate change. Secular scientists interpret chemical "wiggles" in deep seafloor sediments as a record of 50 or so ice ages within the past 2.6 million years. However, creation scientists think secular scientists are seriously misinterpreting the sediment data and that there's strong evidence for only one Ice Age. We

think the Genesis Flood caused this Ice Age about 4,500 years ago and that it lasted just hundreds of years.⁷

In the secular view, our climate slowly alternates between colder glacials (ice ages) and warmer interglacials. Secular scientists think the timing of ice ages is controlled by changes in the way sunlight striking the Earth is distributed with latitude and season. They think these sunlight changes are themselves caused by variations in Earth's orbital and rotational motions. This particular belief about past climate change is called the astronomical or Milankovitch ice age theory.

The astronomical theory has many problems. First, evidence for the theory is weak, as discussed below. Second, the changes in sunlight are so small that it's difficult to see how they alone could cause ice ages. Well-known secular astronomer Fred Hoyle once ridiculed the Milankovitch theory for this very reason.⁷ The astronomical theory only works if these small changes in sunlight can somehow be amplified.

Paleoclimatologists [scientists who study ancient climates] have long recognized that the amount of Milankovitch-induced change in solar heating is too small to melt glaciers or to send Earth into a deep freeze, unless some as yet unidentified part of the climate system amplifies it.⁸

The Astronomical Theory and Climate Sensitivity

So, what do secular scientists think is amplifying these small changes in sunlight? If you guessed carbon dioxide, go to the head of the class!

Simulations with global climate models show that the amplitude [size] of glacial-interglacial temperature changes can only be reproduced if CO₂ changes are accounted for... This leads us to conclude that CO₂ changes are an important (feedback) factor in determining glacial-interglacial temperature changes although the ultimate cause of the ice age cycles are Earth's orbital cycles.⁹

Do you follow the reasoning? Secular scientists have convinced

themselves that the Milankovitch theory is correct. However, they realize the changes in sunlight predicted by the theory are too small to alone cause ice ages. Furthermore, computer models can only reproduce supposed past temperature changes if the models assume that CO₂ helps amplify the effect of these small changes (Figure 1). In

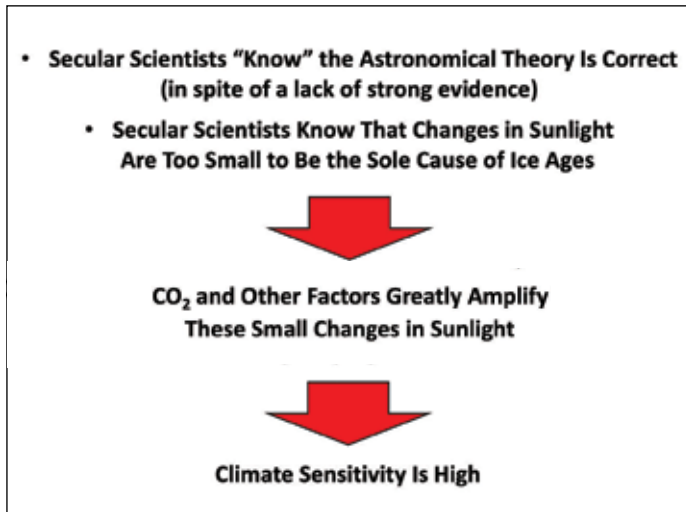


Figure 1. The circular reasoning used by uniformitarian (old-earth) scientists to conclude that climate sensitivity is high.

other words, they assume CO₂ is a major positive feedback. They also assume that the negative feedbacks that are known to exist will not be large enough to resist this CO₂-enhanced warming. One scientist makes the argument this way:

Thus when arguing for low climate sensitivity, it becomes difficult to explain past climate changes. For example, between glacial and interglacial periods, the planet’s average temperature changes on the order of 6°C (more like 8–10°C in the Antarctic). If the climate sensitivity is low, for example due to increasing low-lying cloud cover reflecting more sunlight as a response to global warming, then how can these large past temperature changes be explained?¹⁰

He goes on to say:

The main limit on the [climate] sensitivity value is that it has to be consistent with paleoclimate data. A sensitivity which is too low will be inconsistent with past climate changes – basically if there is some large negative feedback which makes the sensitivity too low, it would have prevented the planet from transitioning from ice ages to interglacial periods, for example.¹⁰

Obviously, these conclusions are only correct if the astronomical theory itself is correct. So, how strong is the evidence for the theory?

The Astronomical Theory: What’s the Evidence?

Evidence for the astronomical theory is not strong at all. I am aware of only two papers that come anywhere close to providing objective evidence for the astronomical theory, even by secular, old-earth reckoning. Original ICR research revealed very serious problems with the first paper.^{11,12} The second paper purports to confirm the theory but is not very convincing. In fact, it appears to be an attempt to discreetly “prop up” the first paper.^{8,13,14}

Two factors make the theory seem much stronger than it really is. One is the sheer number of published papers on the subject. An internet search for “Milankovitch theory” produces more than 100,000 results! However, nearly all the technical papers on the subject simply assume the theory to be correct. Secular scientists then use that assumption to assign ages to ice and deep-sea cores and/or to draw conclusions about past or future climate change.

The second factor is the existence of charts such as the one in Figure 2. These kinds of charts are extremely common in both popular and technical science publications. The blue and green lines are changes in temperature inferred from the chemistry of two deep Antarctic ice cores. The red line is global ice volume inferred from the chemistry of deep-sea sediments. Note that the red pattern is upside down, with “high” ice volumes at the bottom and “low” ice volumes at the top. The three sets of wiggles seem to track very well with each other. Ice volume increases when temperature falls and de-

GOD HAS DESIGNED EARTH AND ITS SYSTEMS AND GAVE HIS PROMISE TO NOAH AFTER THE FLOOD FOR AN OVER-ALL CLIMATE STABILITY (GENESIS 8:22).

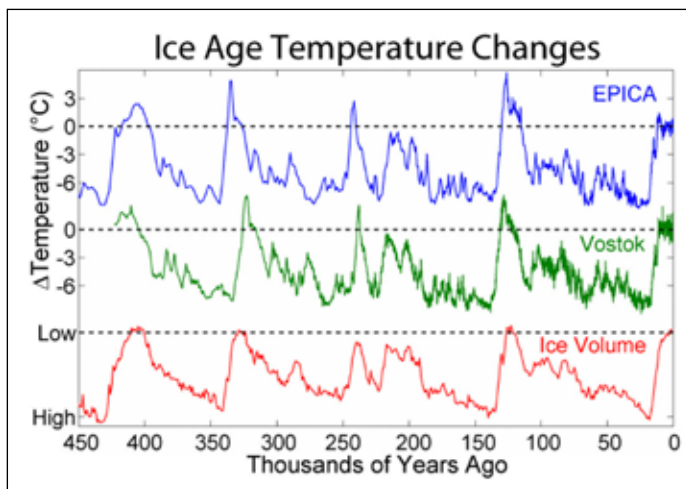


Figure 2. Chart showing a close agreement, apparently lasting hundreds of thousands of years, between inferred temperatures and global ice volume. The blue and green lines reflect temperature changes inferred from chemical measurements in two Antarctic ice cores. The red line is global ice volume inferred from chemical measurements in deep-sea sediment cores. Despite appearances, charts such as these are not strong arguments either for an old earth or for the astronomical theory.

Copyright © Robert A. Rohde. Used in accordance with federal copyright (fair use doctrine) law. Usage by ICR does not imply endorsement of copyright holder.

creases when temperature rises. It looks like all three lines are telling a consistent story about climate change over the last 450,000 years. Furthermore, it's not too hard to show that the times of greatest ice volume agree with Milankovitch expectations.

This might seem to be an incredibly powerful argument for both an old earth and the astronomical theory. If independent datasets are telling the same story about climate change over hundreds of thousands of years, how can any reasonable person doubt either millions of years or the astronomical theory?

Orbital Tuning Tailors the Results

But the appearance of this argument's validity is actually superficial because the datasets are *not* independent. When scientists extract cores from the ocean floor and ice sheets, the cores don't come with marked ages. Secular scientists recognize that radioisotope dating methods are of little help in dating the cores. For this reason, they use the astronomical theory to assign ages to the cores in a process called *orbital tuning*.¹⁵ They think that maximum and minimum values of chemical wiggles in the cores indicate the deepest parts of cold glacials and the warmest parts of warm interglacials. Furthermore, they think the astronomical theory gives them the times in the prehistoric past at which these climate changes occurred. The tuning process requires some sections of the wiggly patterns to be "squished" and other sections to be "stretched" in an accordion-like fashion.

Orbital tuning involves a huge potential for self-deception because it gives the "tuner" the freedom to selectively stretch and compress different parts of the chemical wiggle patterns in the sediment

and ice cores. With this freedom, there's a good chance that the tuner can force the pattern to look like those shown in Figure 2. This is true even if the wiggles have nothing at all to do with climate. This means you can force the patterns to agree with the Milankovitch theory even if the theory is wrong! Even secular scientists have given pointed warnings about the dangers of circular reasoning in orbital tuning.¹⁴⁻¹⁶ This is why Figure 2, despite appearances, is really not a strong argument for the astronomical theory. The wiggly patterns agree with the theory because orbital tuning *made them* agree!

An Informed Response

Before Christians jump on the climate change bandwagon, they need to understand *why* secular scientists are making the claims they do. These scientists say our climate is very sensitive to changes in carbon dioxide (CO₂) because of the results of computer climate models and their old-earth interpretation of chemical wiggles in deep-sea sediments. However, the computer models are likely overestimating climate sensitivity. Likewise, the old-earth interpretation of deep-sea sediment data is coming from the astronomical (Milankovitch) ice age theory. Yet there is little, if any, evidence for this theory, even by secular reckoning.

Although Christians should certainly practice good stewardship over the earth, we don't need to succumb to demands for drastic action based on faulty science and millions-of-years manipulations. We'd expect climate sensitivity to be low because God has designed Earth and its systems and gave His promise to Noah after the Flood for an overall climate stability (Genesis 8:22). ☞

References

1. Sacks, E. The gospel of climate change: Green pastors bringing environmentalism to evangelicals. *NBC News*. Posted on nbcnews.com April 22, 2018, accessed January 14, 2019.
2. Cupps, V. R. and J. Hebert. 2016. A Realistic Look at Global Warming. *Acts & Facts*. 45 (4): 10-13.
3. Biello, D. The Most Important Number in Climate Change: Just how sensitive is Earth's climate to increasing concentrations of carbon dioxide? *Scientific American*. Posted on scientificamerican.com November 30, 2015, accessed February 26, 2019.
4. Chandler, D. L. Explained: Climate sensitivity. MIT News. Posted on news.mit.edu March 19, 2010, accessed February 26, 2019.
5. Spencer, R. New Lewis & Curry Study Concludes Climate Sensitivity is Low. Posted on droyspencer.com April 24, 2018, accessed October 8, 2018.
6. Hebert, J. Important Climate-Change Realism Paper Published. *Creation Science Update*. Posted on ICR.org June 12, 2018, accessed January 14, 2019.
7. Hebert, J. 2018. The Bible Best Explains the Ice Age. *Acts & Facts*. 47 (11): 10-13.
8. Kerr, R. A. 1997. Upstart Ice Age Theory Gets Attentive But Chilly Hearing. *Science*. 277 (5323): 183-184.
9. Schmittner, A. Paleoclimate. Introduction to Climate Science. Online text for Oregon State University, College of Earth, Ocean, and Atmospheric Sciences. Posted on library.open.oregon-state.edu, accessed January 4, 2019.
10. Nuccitelli, D. How sensitive is our climate? *Skeptical Science*. Posted on skepticalscience.com, accessed November 13, 2018.
11. Hays, J. D., J. Imbrie, and N. J. Shackleton. 1976. Variations in the Earth's Orbit: Pacemaker of the Ice Ages. *Science*. 194 (4270): 1121-1132.
12. Hebert, J. 'Big Science' Celebrates Invalid Milankovitch Paper. *Creation Science Update*. Posted on ICR.org December 26, 2016, accessed January 14, 2019.
13. Raymo, M. E. 1997. The timing of major climate terminations. *Paleoceanography and Paleoclimatology*. 12 (4): 577-585.
14. Monastersky, R. 1997. The Big Chill: Does dust drive Earth's ice ages? *Science News*. 152 (14): 220.
15. Hebert, J. 2016. Deep Core Dating and Circular Reasoning. *Acts & Facts*. 45 (3): 9-11.
16. Neeman, B. U. 1993. Orbital Tuning of Paleoclimatic Records: A Re-assessment. Ernest Orlando Lawrence Berkeley National Laboratory. LBNL-39572, UC-412.



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

Recent Humans with Archaic Features Upend Evolution

Ideas shaping the concept of human evolution have largely played out through images. Characters with large brow ridges and sloping foreheads—including *Homo neanderthalensis* and *Homo erectus*—have consistently been depicted as the earliest forms of evolving humans. Now, new fossil evidence is turning the whole paradigm upside down.

A skull fossil found in Mongolia in 2006 was linked to evolutionary icons like *H. neanderthalensis* and *H. erectus* because of its alleged “archaic” features. A recent study now dates it at about 34,000 years, which puts it in the same age range (evolutionarily speaking) as very recent humans.¹ This study also extracted mitochondrial DNA from the skull and placed it within the range of modern Eurasian humans. Considering that secular scientists have dated other human skulls with “anatomically modern” features at over 300,000 years,² these new findings of “recent” humans with archaic features highlight the abject futility of the human evolution story.

This discrepancy is reminiscent of human skulls found in Kow Swamp, Australia, reported in the journal *Nature* in 1972. In that study, researchers stated, “Analysis of the cranial morphology of more than thirty individuals reveals the survival of *Homo erectus* features in Australia until as recently as 10,000 years ago.”³

But evolution’s problem of human fossils with archaic features persisting into the very recent evolutionary past pales in light of the fact that these traits are still found in *living* humans. One of the best examples is former Russian boxing champion



Figure 1. Salkhit skullcap found in Mongolia.

Image credit: Copyright © Institute of History and Archaeology, Mongolian Academy of Sciences. Used in accordance with federal copyright (fair use doctrine) law. Usage by ICR does not imply endorsement of copyright holder.

article highlights

- A “recent” human fossil with “archaic” features found in Mongolia conflicts with the story of evolution.
- Human fossils with archaic features that have recent dates are bad enough for evolutionists, but the fact these traits are still found in humans today is far worse.
- So-called archaic humans have always coexisted with modern humans, just as creationists expect.

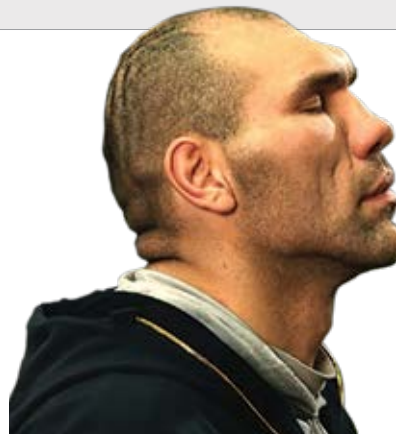


Image credit: Russian boxer Nikolai Valuev. Copyright © 2015 Allrume. Used in accordance with federal copyright (fair use doctrine) law. Usage by ICR does not imply endorsement of copyright holder.

Nikolai Valuev. A profile picture of Valuev clearly shows he possesses a very prominent brow ridge along with a distinctly sloping forehead.

As things stand, the so-called fossil record for human evolution is still nothing but a collection of apes and humans with no transitional forms linking the two groups. This inconvenient fact was the subject of a 2016 Royal Society research paper bearing the provocative title “From *Australopithecus* to *Homo*: the transition that wasn’t.”⁴

Numerous studies have shown that Australopithecines are extinct apes with many chimp-like anatomical traits. *Homo* is the human genus that includes all of us modern folks along with our assumed archaic ancestors. In the Royal Society paper, the researchers bluntly state:

Although the transition from *Australopithecus* to *Homo* is usually thought of as a momentous transformation, the fossil record bearing on the origin and earliest evolution of *Homo* is virtually undocumented.⁴

Not only is there no fossil evidence for the evolution of humans from apes, but the so-called archaic features of alleged early evolving humans have in reality coexisted with those of anatomically modern humans throughout the *Homo* fossil record and are even found in humans today. Human skull trait diversity merely demonstrates the created variability that was placed there by the ingenuity of the Creator. ✎

References

1. Deväese, T. et al. 2019. Compound-specific radiocarbon dating and mitochondrial DNA analysis of the Pleistocene hominin from Salkhit Mongolia. *Nature Communications*. 10: 274.
2. Hublin, J.-J. et al. 2017. New fossils from Jebel Irhoud, Morocco and the pan-African origin of *Homo sapiens*. *Nature*. 546: 289-292.
3. Thorne, A. G. and P. G. Macumber. 1972. Discoveries of Late Pleistocene Man at Kow Swamp, Australia. *Nature*. 238: 316-319.
4. Kimbel, W. H. and B. Villmoare. 2016. From *Australopithecus* to *Homo*: the transition that wasn’t. *Philosophical Transactions of the Royal Society B*. 371 (1698): 20150248.

Dr. Jeffrey Tomkins is Director of Life Sciences at the Institute for Creation Research and earned his Ph.D. in genetics from Clemson University.



ICR Discovery Center Update

The outside of the ICR Discovery Center for Science and Earth History is nearing completion! The nine giant fossil replica panels were recently lifted into place on the outer wall next to Royal Lane. Each one is 12' x 12' and weighs 3,500 pounds—that's as much as a car! Artisans carved the replicas out of modeling clay and cast them in durable concrete.

The sequence of the panels from left to right reflects the relative order in which these creatures were entombed in the fossil

record. The trilobite, cephalopod, paddlefish, ichthyosaur, mosasaur, pterodactyl, *Archaeopteryx*, and *T. rex* were catastrophically buried during the Genesis Flood. Rather than showing evidence of evolution, this sequence demonstrates the Flood's progression. The fully human Neanderthal fossil at the end dates from the immediate post-Flood Ice Age.

Other exhibits are taking shape, and the content for the final Life of Christ exhibit is being filmed. Now that we have the fos-

sil wall in place, people passing by will have a glimpse of the compelling evidence that awaits them inside!

Help Us Complete the Exhibits

We're developing exhibits that point people to our Creator and Redeemer, the Lord Jesus Christ. Visit ICR.org/DiscoveryCenter and partner with us!



The Neanderthal fossil replica panel is set in place

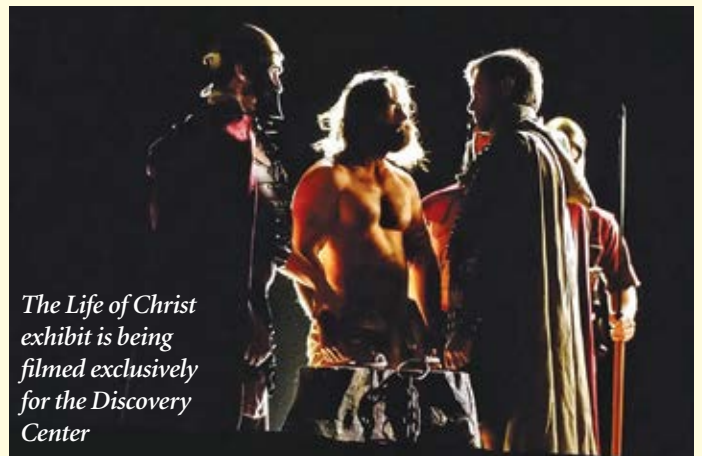


The Discovery Center is beautiful at night

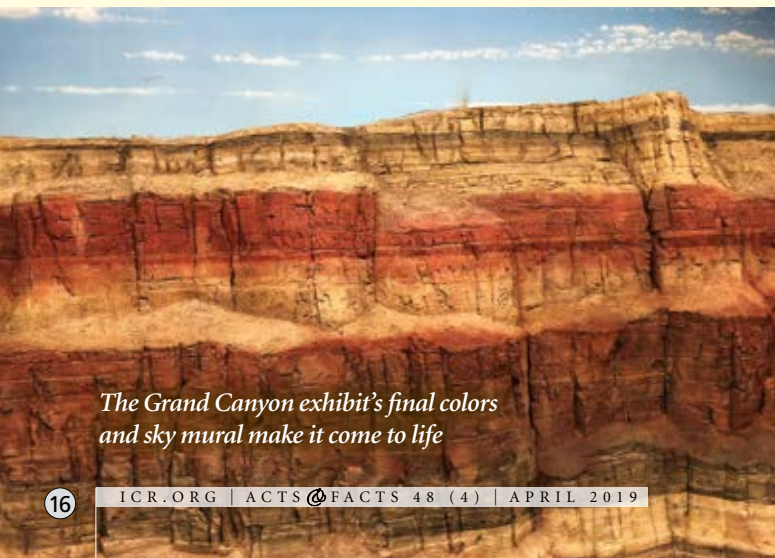
A few of the Garden of Eden's animals



The Life of Christ exhibit is being filmed exclusively for the Discovery Center



The Grand Canyon exhibit's final colors and sky mural make it come to life



Young Mary holds baby Jesus





New Distributed Problem-Solving Model for Population Adaptation

PHIL B. GASKILL AND RANDY J. GULIUZZA, P.E., M.D.

article highlights

- Evolutionists emphasize competition in which a few emerge victorious at the expense of the many.
- An engineering-based model could see a population of problem-solving organisms that functions like a human-designed distributed computing system.
- This model emphasizes cooperation over competition, where both the individual and the population are valuable.
- In this decentralized population adaptation model, new traits are produced and distributed in a targeted, problem-solving manner rather than randomly.
- This model expects rapid convergence on solutions rather than slow, gradual evolution.

The Engineered Adaptability series of articles in *Acts & Facts* has argued that most adaptations—broadly mischaracterized as “evolution” by secular science—are highly regulated, often rapid, and so clearly targeted to specific conditions that they are predictable.

To explain the regulated, rapid, and targeted characteristics of adaptation, the Institute for Creation Research developed a design-based, organism-focused model called *continuous environmental tracking* (CET). It hypothesizes that as an organism monitors environmental changes, it makes adaptive self-adjustments. Recent discoveries have identified internal tracking mechanisms that have elements that correspond to those in human tracking systems.

These findings show that organisms are active, problem-solving entities. Thus, the evolutionary depiction of individual organisms as passive modeling clay actively shaped by their environment is exactly backwards.

At the population level, natural selection envisions these organisms locked in mortal competition with each other, with a few individuals emerging victorious at the expense of the rest of the population. They pass on their genes while the “weaker” genes are eliminated. Evolutionary scientists imagine that the survivors were lucky enough to be endowed with superior genes through random mutations.

In stark contrast, an engineering-based model would suggest that both the individual and the population are vitally important. Thus, in order to arrive at optimal solutions to environmental challenges, individuals and populations work together in a targeted, non-random approach to problem solving. Such a model has the potential to liberate biologists from the selectionist mindset. What characterizes this mindset?

A Selectionist Mechanism Is Exceedingly Slow

As natural selection acts solely by accumulating slight, successive, favourable variations, it can produce no great or sudden modifications; it can act only by short and slow steps.¹

— Charles Darwin, *On the Origin of Species*

Neo-Darwinism is the almost universally accepted model of evolution. It is invoked to explain the remarkable adaptation of both individual organisms and entire populations to their natural surroundings. Neo-Darwinism was developed in order to prevent the demise of the Darwinian theory of evolution, which was not widely accepted around the turn of





the 19th century due to its perceived lack of a viable mechanism. In the early 1900s, the work of R. A. Fisher, J. B. S. Haldane, and Sewall Wright in the emerging field of population genetics laid the groundwork for the eventual acceptance of the construct of natural selection as the driving force behind evolution.²

In 1957, Haldane developed a mathematical description of how beneficial mutations become fixed in a population over time. But in doing so, he uncovered a significant problem. Haldane reasoned that a beneficial mutation must substitute for non-mutated genes in order to be distributed throughout the population. The rate at which this occurs is limited by an organism’s reproductive rate. Given that mutations are likely to occur initially in only a few individuals, he calculated that there hasn’t been enough time to generate the world’s observed genetic diversity, even assuming vast eons.

This is particularly true for organisms with low reproduction rates and long generation times. For example, only 0.02% of the observed differences between the human and ape genome could have been generated in the supposed 10 million years since divergence from an assumed common ancestor.³ This problem is known as Haldane’s dilemma. It was further clarified and validated in Walter ReMine’s 1993 book *The Biotic Message* and again in his 2005 paper,⁴ but the problem has still not been resolved and today is simply ignored. And recently, the problem has gotten much worse.

Research Shows Rapid Adaptation

Over the last 20 years, numerous studies have demonstrated the surprisingly rapid adaptation of populations to changing environmental conditions. The observed adaptations involve a wide variety of traits in many kinds of organisms, including

- Changes in maturation timing and body size in guppies⁵
- Diverging characteristics in freshwater and oceanic populations of threespine stickleback fish⁶
- Increased thermal tolerance in phytoplankton⁷
- Increased heavy metal tolerance and herbicide resistance in plants⁸
- Changes in the frequency of plumage coloration in tawny owls⁹
- Morphological changes in finch beak and body size¹⁰ and
- Morphological changes in lizards (toe pad size, head size, bite strength, even digestive tract structure).^{11,12}

All of these observed adaptations occurred in response to environmental changes in only a few generations (in most cases less than 50 years). A 2011 paper summarized mounting evidence for rapid adaptation of populations and noted that such observations have taken evolutionary scientists by surprise: “In retrospect, we can ask

why the correspondence of ecological and evolutionary time was not recognized.”¹³

Of course, the reason evolutionists are surprised by the abundant evidence for rapid adaptation is that their envisioned mechanism of evolution—natural selection—is by its very nature exceedingly slow. Rather than acknowledge the serious challenge this disconnect poses for the neo-Darwinian theory, many scientists simply incorporate these unexpected findings into the theory. They adopt terms such as “contemporary evolution” or “eco-evolutionary dynamics”—the assertion that ecological and evolutionary changes interact in a feedback loop over observable timescales.¹⁴ A 2009 paper discussing eco-evolutionary dynamics went so far as to say that the previous characterization of evolution as a slow process is simply wrong.

Species as diverse as single-celled algae, annual plants, birds, fishes, crustaceans, insects and sheep are found to undergo rapid contemporary evolutionary changes in traits that adapt them within a few generations to changing or new environments.... Thus, the old assumption that evolutionary change is negligible on the time-scale of ecological interactions is now demonstrably incorrect.¹⁴

A growing number of evolutionary biologists are recognizing the conceptual and mathematical limits to selectionism and are searching for alternative mechanisms.¹⁵



Needed: Populations to Solve Problems as Efficiently as Individuals

The Engineered Adaptability series makes the case that adaptation results from “immanent selection” (i.e., from internal, engineered mechanisms) coupled with CET.¹⁶ However, the focus of these articles has been on changes that occur at the individual organism level. Does this new framework have explanatory power when considering adaptation at the population level?

The problem at hand is how to change the frequency of adaptive traits in a population so that it is resilient in the face of significant environmental change, and how to do so quickly enough that the rate of adaptation is nearly the same as the rate of environmental change. In other words, how can a population of organisms *rapidly* and *reliably* adapt to changing environmental conditions?

Specifically, what is needed is rapid convergence on an optimal solution by the majority of the individuals in the population. If a population of organisms can achieve this, it can exploit new environmental niches—which is exactly what rapidly adapting populations appear to be doing. If we are looking for correspondence between human-engineered mechanisms and those found in living things, we should ask: How might an engineer solve this problem?

A New View of Populations: Distributed Problem-Solving Applications

One likely approach an engineer could take would be to leverage the power of distributed computing. Distributing computing uses multiple networked computers to solve complex problems that can't be solved within a reasonable amount of time using a single computer. This kind of computer system enables the execution of distributed algorithms, which are particularly good at solving problems for which a consensus must be reached regarding which solution is best.¹⁷

What if we supposed that a population of problem-solving organisms could function like a distributed computing system? The hypothesis is plausible when we consider the definition of a distributed system:

A distributed system is one in which components located at networked computers communicate and coordinate their actions only by passing messages. This definition leads to the following especially significant characteristics of distributed systems: concurrency of components, lack of a global clock and independent failures of components.¹⁸

Interestingly, there is emerging evidence that populations of organisms do in fact communicate and coordinate their actions through an amazing array of biochemical and behavioral signaling.¹⁹ In one remarkable example, overcrowded adults in a population of nematodes (roundworms) signal still-developing juveniles to develop a specialized mouth form they can use to consume alternative foods.²⁰

Let's examine the correspondence more closely. In a population of organisms, all individuals are simultaneously undergoing development by interacting with and adapting to their surrounding environment (concurrency); individual organisms develop at slightly different rates and are at different stages of development (lack of a global clock); and though the death of an individual organism removes information from the gene pool, the rest of the population continues to interact with and adapt to the environment (independent failure).

In this view, a population rapidly reaches an optimal solution as individual "computers" (organisms) running the same "distributed algorithm" (immanent selection) generate similar "solutions" (traits). They then reproduce and redistribute the traits, with the consensus solution becoming dominant in just a few generations. This rapidly adapts the population to changing environmental conditions or a new environmental niche. Just as in a distributed computing system, increasing the number of individual computers (organisms) increases the speed at which an optimal solution to a problem can be achieved.

Furthermore, a population that has a large number or wide geographic distribution of organisms should develop a greater diversity of solutions (i.e., genetic diversity) and can more easily and rapidly

adapt to extreme environmental change. This is precisely what many of the recent studies of rapid adaptation appear to demonstrate.

Conclusion

This model of adaptation in populations stands in sharp contrast to neo-Darwinism's selectionist model. It emphasizes cooperation over competition and asserts that new traits are generated and distributed in a targeted, problem-solving manner rather than randomly. Thus, it expects widely observed rapid convergence on solutions rather than slow progress over vast eons.

The hypothesis that populations are analogous to distributed problem-solving applications (i.e., algorithms) enables predictions and could guide research. And just as human-designed distributed systems are a brilliant approach to solving complex problems, so populations of problem-solving organisms demonstrate the intelligence of the Master Designer. The creatures of His world are indeed fearfully and wonderfully made (Psalm 139:14). ☞

References

1. Darwin, C. 1882. *On the Origin of Species by Means of Natural Selection*. New York: D. Appleton and Co., 413-414.
2. Williams, A. 2014. Beneficial mutations: real or imaginary?—part 1. *Journal of Creation*. 28 (1): 122-127.
3. Batten, D. 2005. Haldane's dilemma has not been solved. *Journal of Creation*. 19 (1): 20-21.
4. ReMine, W. J. 1993. *The Biotic Message: Evolution Versus Message Theory*. St. Paul, MN: St. Paul Science; ReMine, W. J. 2005. Cost theory and the cost of substitution—a clarification. *Journal of Creation*. 19 (1): 113-125.
5. Reznick, D. N. et al. 1997. Evaluation of the Rate of Evolution in Natural Populations of Guppies (*Poecilia reticulata*). *Science*. 275 (5308): 1934-1937.
6. Lescaik, E. A. et al. 2015. Evolution of stickleback in 50 years on earthquake-uplifted islands. *Proceedings of the National Academy of Sciences*. 112 (52): E7204-E7212.
7. O'Donnell, D. R. et al. 2018. Rapid thermal adaptation in a marine diatom reveals constraints and trade-offs. *Global Change Biology*. 24 (10): 4554-4565.
8. Bone, E. and A. Farres. 2001. Trends and rates of microevolution in plants. *Genetica*. 112-113 (1): 165-182.
9. Karell, P. et al. 2011. Climate change drives microevolution in a wild bird. *Nature Communications*. 2: 208.
10. Grant, P. R. and B. R. Grant. 2006. Evolution of Character Displacement in Darwin's Finches. *Science*. 313 (5784): 224-226.
11. Stuart, Y. E. et al. 2014. Rapid evolution of a native species following invasion by a congener. *Science*. 346 (6208): 463-466.
12. Herrel, A. et al. 2008. Rapid large-scale evolutionary divergence in morphology and performance associated with exploitation of a different dietary resource. *Proceedings of the National Academy of Sciences*. 105 (12): 4792-4795.
13. Schoener, T. W. 2011. The Newest Synthesis: Understanding the Interplay of Evolutionary and Ecological Dynamics. *Science*. 331 (6016): 426-429.
14. Jones, L. E. et al. 2009. Rapid contemporary evolution and clonal food web dynamics. *Philosophical Transactions of the Royal Society B*. 364 (1523): 1579-1591.
15. Laland, K. et al. 2014. Does evolutionary theory need a rethink? *Nature*. 514 (7521): 161-164.
16. Guliuzza, R. J. 2019. Engineered Adaptability: Trait Selection Is Internal, Not External. *Acts & Facts*. 48 (2): 18-20.
17. Lynch, N. A. 1997. *Distributed Algorithms*. San Francisco, CA: Morgan Kaufman Publishers, Inc.
18. Coulouris, G. et al. 2012. *Distributed Systems: Concepts and Design*, 5th ed. Boston, MA: Addison-Wesley.
19. Thomas, B. 'Simple' Amoebas Can Farm Bacteria. *Creation Science Update*. Posted on ICR.org February 10, 2011, accessed January 30, 2018; Guliuzza, R. J. Sorghum and Bacteria Cooperative Design. *Creation Science Update*. Posted on ICR.org October 16, 2018, accessed January 30, 2019.
20. Werner, M. S. et al. 2018. Adult Influence on Juvenile Phenotypes by Stage-Specific Pheromone Production. *iScience*. 10: 123-134.

Mr. Gaskill is an independent researcher. He earned a B.A. in history from Lawrence University, worked as a systems engineer for several IT firms, and was a science writer for Cramer Fish Sciences. He is currently Scientific & Technical Information Specialist for Idaho National Laboratory.

Dr. Guliuzza is ICR's National Representative. He earned his M.D. from the University of Minnesota, his Master of Public Health from Harvard University, and 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.



Q: Are Fossils Just Rocks Shaped like Bones?

A I picked up my first fossil from beneath a swing in Kansas when I was six years old. Fossils have fascinated me ever since. Soon after, our family visited a dinosaur museum. The nice lady there explained that dinosaur fossils are actually rocks in the shape of bones. After all, she said, the process of fossilization takes millions of years. Over that much time, minerals would fully replace all the original bone. That sounded fine, so I believed it.

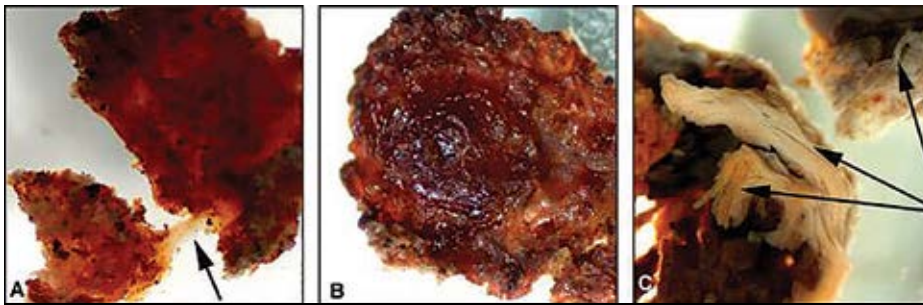
Decades later, I saw pictures that challenged all that. Published in the journal *Science*, color photographs showed blood-red flesh with white, flexible connective tissue from inside a *T. rex* leg bone.¹ Wow, that's not rock. I was taught to think that water carried dissolved minerals through tiny holes deep into bones. The water went away and left the minerals behind in a process called *permineralization*. It did happen that way for many fossils—but not all.

Processes brought them back to Earth's surface in places like Canada's Burgess Shale. There, researchers peel apart thin mudstone sheets to reveal blackish residues—all that's left of ancient sea creatures. The heat and pressure baked original biomaterials including proteins and sugars into the black, carbonized material we find today.



Burgess Shale

Image credit: science.gc.ca/eic/site/063.nsf/eng/97226.html. Adapted for use in accordance with federal copyright (fair use doctrine) law. Usage by ICR does not imply endorsement of copyright holder.



T. rex soft tissue fossil

Image credit: Copyright © 2005 American Association for the Advancement of Science.¹ Adapted for use in accordance with federal copyright (fair use doctrine) law. Usage by ICR does not imply endorsement of copyright holder.

Scientific evidence of soft, flexible, original biomaterial from this and scores of similar finds from around the world forced me to rethink the meaning of “fossil.”² It turns out that different fossils formed in different ways. Some fossils are mostly mineralized, but others look like dried-out carcasses.

Some creatures got flattened and heated beneath tons of sediment. Later pro-

cesses brought them back to Earth's surface in places like Canada's Burgess Shale. There, researchers peel apart thin mudstone sheets to reveal blackish residues—all that's left of ancient sea creatures. The heat and pressure baked original biomaterials including proteins and sugars into the black, carbonized material we find today.

Other fossils show mineral outlines of original soft organs like brains or guts. As creatures decayed inside drying mud, bacteria clung to the outer surface of each organ. The bacteria made chemical waste products that attracted nearby sulfur, iron, or phosphorus. Today, we see organs outlined in yellows and reds from bacterial-influenced sulfurization, pyritization, or phosphatiza-

article highlights

- I was taught as a child that fossils formed over millions of years as minerals slowly replaced the original materials.
- Recent finds show that not all fossils turned into rock.
- Different processes produced different types of fossils.
- Some fossils contain undecayed tissue that confronts evolution's long ages.

tion. In these cases and others, longer-lasting minerals replaced the original biomaterials.

I felt new shock when I read a study of original biomaterial in Burgess Shale sea sponge fossils. Not rock, not mineral, not phosphatized, not blackened, but sponges with original proteins and carbohydrates intact. Perhaps these sponges landed in a spot that didn't get quite as hot. Secular scientists insist they were buried 505 million years ago,³ but nobody has shown any biomaterial with properties that would allow it to last much longer than a mere one million years. This means they could have lasted for the thousands of years since Noah's Flood buried them but not for the millions of years that so many people claim.

So, what does *fossilize* mean? Different fossils show different origins. Some were replaced with mineral, like the nice lady at the museum said. Others show mineral outlines of original organs or carbon films from baked bodies. But a growing number of fossils look virtually unchanged, and these original biomaterial fossils confront evolution's long ages. ✍

References

1. Schweitzer, M. H. et al. 2005. Soft-Tissue Vessels and Cellular Preservation in *Tyrannosaurus rex*. *Science*. 307 (5717): 1952-1955.
2. Thomas, B. 2013. A Review of Original Tissue Fossils and Their Age Implications. In *Proceedings of the Seventh International Conference on Creationism*. M. Horstemeyer, ed. Pittsburgh, PA: Creation Science Fellowship.
3. Ehrlich, H. et al. 2013. Discovery of 505-million-year old chitin in the basal demosponge *Vauxia gracilentia*. *Scientific Reports*. 3: 3497.

Mr. Thomas is Science Writer at the Institute for Creation Research and earned his M.S. in biotechnology from Stephen F. Austin State University.



Termite Skyscrapers Hidden in Plain View

Many evolutionists fail to see what is “hidden in plain view” for the same reason British Celts saw the wrong thing when Julius Caesar attacked them in 54 BC. Since the Britons never recruited multi-ethnic mercenaries, instead of seeing one invading force, they reported Caesar’s beach landing as an attack by combined armies of Rome, Libya, and Syria.¹ They saw what their presuppositions led them to see. Likewise, evolutionists misinterpret many facts in plain view due to their erroneous assumptions.

Last month’s article examined the evolutionary concept of ecosystem engineering, which considers the proactive way in which animals alter their environments.² Although this is an improvement on the evolutionary view that organisms are passive recipients rather than active participants, it still misses the best lessons these animals teach. Two examples of such misunderstanding are considered below.

“Bigger Is Better”

Some ecologists try to limit the application of the ecosystem engineering concept to the impactful and “big” habitat alterations made by animals. Thus, beaver dams and coral reefs are “big enough” to qualify as ecosystem engineering habitat modifications, but bird nests and prairie burrows are often dismissed as *de minimis*—not worthy of comparable attention.²

This is a “bigger is better” fallacy, which is a manifestation of an anthropocentric (human-centered) viewpoint that evaluates a situation only from the human perspective. If something doesn’t seem big to us, it must not be significant. But ecologically speaking, which is more important: a huge elephant or a microscopic *yet deadly* virus? Which can ultimately have the bigger impact?

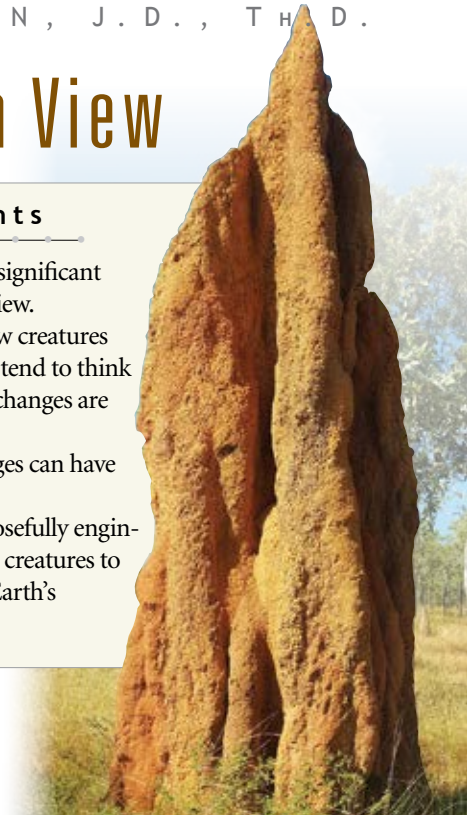
An anthropocentric perspective is unrealistic when evaluating whether animal activity is “big enough” to be ecologically important. For example, consider how deadwood-eating termites aggressively modify their neighborhoods. They use saliva-soil mud to build air-conditioned mud “chimneys” above interconnected underground tunnels. Mounds built by Australia’s *Amitermes meridionalis* termites can be 12’ tall, 8’ wide, and 3’ deep.³

Consider that *Amitermes* worker termites are about a third of an inch long. The termites-to-mound height ratio is thus 432:1. This is comparable to humans constructing spit-mud mounds 2,592’ high—in relative terms, almost double the height of the Empire State Building. To a human, the mound chimney might be just a big mud pile, but to a worker termite it’s an enormous skyscraper!

Another example is found in Chesapeake Bay, which is burdened with excess nitrogen and organic nutrients that people release into its tributaries. The nitrogen compounds fuel picoplankton, which comprise ~15% of bay phytoplankton biomass during the summer. If left unchecked, their growth would lead to algal blooms that would block sunlight from submergent aquatic plants, leading to oxygen-

article highlights

- Evolutionists often miss significant things that are in plain view.
- Ecologists who study how creatures alter their environments tend to think only big environmental changes are important.
- But small-creature changes can have a big impact.
- God designed and purposefully engineered both big and small creatures to play important roles in Earth’s ecology.



depleted “dead zones.”⁴

Thankfully, oyster reefs, bolstered by attached mussels, filter huge volumes of the

bay’s water and consume the otherwise unrestrained picoplankton. This filtering ultimately benefits the dissolved oxygen and accessible underwater sunlight needs of the interactive Chesapeake Bay’s ecosystem.⁴

Humans might discount the teeming gazillions of picoplankton simply because they’re too small for us to see, but we shouldn’t discount the importance of the bivalves’ impact in keeping their environmental waters clear enough of picoplankton to sustain life. The combined filtering of eastern oysters and hooked mussels provides estuarial water clean-up services “hidden in plain sight.”

Who Engineered These Small-Yet-Great Ecosystem Benefits?

Like the ancient Britons, ecologists who embrace ecosystem engineering can miss what’s happening because they see what their presuppositions lead them to expect. But even more, they can miss the *significance* of what they see. Creatures proactively engage with and change their environments, but they don’t “engineer” anything. That glory goes to creation’s Architect and Bioengineer, the Lord Jesus Christ, who designed, built, and maintains all of these small-yet-great super-interactive ecosystems (Revelation 4:11). ✍

References

1. Cooper, B. 1995. *After the Flood*. Chichester, UK: New Wine Press, 58-59.
2. Ecosystem engineering analysis improves upon earlier “keystone species” concepts yet ultimately fails to identify the true cause and logic underlying animal successes in filling various habitats. Johnson, J. J. S. 2019. Ecosystem Engineering Explanations Miss the Mark. *Acts & Facts*. 48 (3): 20-21, illustrating 2 Timothy 3:7.
3. Grigg, G. C. 1973. Some Consequences of the Shape and Orientation of ‘Magnetic’ Termite Mounds. *Australian Journal of Zoology*. 21 (2): 231-237. (*Amitermes meridionalis* termite mounds are sometimes four meters high.)
4. Gedam, K. B., L. Kellogg, and D. L. Breitburg, 2014. Accounting for Multiple Foundation Species in Oyster Reef Restoration Benefits. *Restoration Ecology*. 22 (4): 517-524. See also Pipkin, W. 2018. Freshwater bivalves flexing their muscles as water filterers. *Chesapeake Bay Journal*. 28 (7): 1.

Dr. Johnson is Associate Professor of Apologetics and Chief Academic Officer at the Institute for Creation Research.



Nearly a year has passed since work began on the internal exhibits of the ICR Discovery Center for Science and Earth History. Our lifelike animatronic *T. rex* was the first major installation in April 2018, and many additions have been made since then. It's been my privilege during this time to lead dozens of tours for local supporters, potential donors, and special guests. From the feedback they've given, it's clear this remarkable facility will have a great impact on many people for the Lord and His Word. Their notes are a great blessing to me, and it's my pleasure to share some recent favorites.

Here's an encouraging note from a generous supporter from Houston: "Henry the Fifth' [our *T. rex*] is AWESOME, and my wife and I are so excited about the progress! ICR has had a profound impact on both of our lives...and we are now even more amazed and thankful for what ICR is building for the public. With great delight, we offer this gift

T. rex, Tours, and Testimonies

article highlights

- Even in its unfinished state, the ICR Discovery Center's great potential is clear.
- Visitors have put on hard hats and safety glasses to get a sneak peek at the exhibits.
- Their feedback shows the impact the Discovery Center will have on many people.

toward the ICR Discovery Center. May it be used to showcase our Creator's handiwork and bring many to Him."

Long-time partners in Washington had this to say: "The Discovery Center is absolutely fantastic! We've visited most creation museums in the USA, both big and small, but none of them rise to the level of quality you folks are doing. (Who knew you could carve concrete like that? Wow!) God bless you for the work you are doing. We've got ICR's back, both financially and in prayer."

From friends in Florida: "Your approach is unique and quite impressive. Frankly, none of us knew there was so much evidence that supports the Bible, and you present it in creative, engaging, and entertaining ways without 'preaching.' The gospel exhibit at the end [hologram of the returning King of kings] especially brings joy to our hearts, and we hope to partner with ICR soon."

A supporter who works in construction wrote: "I have 30 yrs in this industry, so I know a thing or two about quality craftsmanship. The Discovery Center is truly top-notch...Kudos to ICR for contracting with the best. This is a magnificent facility! You are in our prayers as you work to finish it... We know how difficult the 'last mile' can be. Keep up the great work for God."

A group of visiting pastors responded: "God bless you, brother Morris, for the marvelous tour last night! Your enthusiasm for the science that confirms God's Word is contagious, and your challenge to preach the truth of creation from our pulpits was both motivating and convicting. We are excited to share this amazing project with our church families back home. May God use ICR to reach many lives for eternity."

Finally, from the entire staff of a small creation museum in the Midwest: "We just wanted to let you know that everyone is still talking about the tour you gave us and how much it impacted them. Your hospitality was tremendous. Thanks again for taking the time to accommodate us. ICR is truly a blessing, and the ICR Discovery Center is simply the best!"

It's my hope these wonderful testimonies will inspire our supporters—as well as encourage new ones—to keep on praying and giving as the Lord leads. God has used ICR's ministry to bless many people over the last 50 years, and our new Discovery Center has the potential to reach even more with the truth of creation and of our Creator, the Lord Jesus Christ. Please prayerfully consider joining with us. Your earthly investment with ICR today will impact lives for eternity. ✨

Mr. Morris is Director of Operations at the Institute for Creation Research.



**PRAYERFULLY
CONSIDER
SUPPORTING
ICR**

GALATIANS 6:9-10

Online Donations	Stocks and Securities	IRA Gifts	Matching Gift Programs	CFC (Federal/ Military Workers)	Gift Planning • Charitable Gift Annuities • Wills and Trusts
---------------------	--------------------------	--------------	---------------------------	------------------------------------	--

Visit ICR.org/give and explore how you can support the vital work of ICR ministries. Or contact us at stewardship@icr.org or **800.337.0375** for personal assistance.

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

“ I just read Dr. [Henry] Morris’ article in the [February 2019] *Acts & Facts*—“The Importance of Recent Creation.” It’s a clearly written masterpiece.



— A. C.

pro-evolution, anti-creationist postings. We encourage readers to contact Wikipedia about their obvious bias and attempt to edit the Wikipedia posts. Tell the pastor that affirming Genesis is not “cultic,” it’s Christ-approved (John 5:45–47).

I really enjoyed Dr. [Jim] Johnson’s [February 2019 *Acts & Facts*] article “[Beware the Bait of] False Hypotheticals.” These concise snippets of truth are wonderful. **I was in a courtroom the other day when a judge snapped at a person who had brought unsubstantiated allegations.**



The judge said sternly, “Next time, have your facts in order.” We should as well, as Christians, when presenting the truth to the unbeliever. We are reminded: “Test all things; hold fast what is good” (1 Thesalonians 5:21).

— S. Y. F.

Thanks to ICR for your articles—I share them with others...the research tools are also a very good resource. “Grace from the Ark and the Flood” [January 2019 *Acts & Facts*] by Brian Thomas, M.S., was a resource I used to share with grandchildren and great-grandchildren about the goodness left after the great Flood of Noah’s day. It’s entertaining as well as inspirational.

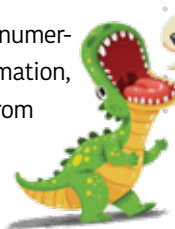


— P. W.

I’m so sad today. A friend’s pastor “reprimanded” me for believing [that] the gap theory and Scofield were wrong. **He called ICR a cult....!** I sent him a link to your website and tried to offer him some *Acts & Facts*—I give them out at church and also to my daughter who homeschools her children. He wouldn’t read your material but pulled up criticism from Wikipedia and other websites. Can someone on your staff go online and edit the Wikipedia site and others who malign you and correct the misinformation?

— K. J.

Editor’s note: We have tried numerous times to fix the misinformation, but Wikipedia prevents ICR from making corrections to its



I’m in the process of watching *Unlocking the Mysteries of Genesis* through RightNow Media with my 15- and 12-year-old children. We’ve currently watched the first two discs. I’m really impressed with the video content, quality, and message. I’ve seen other creation videos in the past from various organizations. **This video series is the best I’ve seen.** First, the video

quality is extremely well done—high-definition, engaging, with a lot of variety. Second, the information is superb. I especially like the non-

threatening, inviting approach. It’s not condescending toward those who believe evolution—it simply points out flaws in the logic. It comes across as authentic and informative without putting people down. I’m thrilled that my kids can watch this with me—as they are both studying biology in public school this year. **I would never be able to get them to read a book on creation, but these videos are so engaging and entertaining that it’s easy for us to be informed in just 20 minutes at a time.** Keep up the great work!

— M. B.

I’ve been a part of ICR’s “fan base” for a long time and have always been fascinated with how you connect Bible and Earth history. Now I am homeschooling my 1st grader, and I use some of your resources with my curriculum. I look forward to continuing to do this throughout her education. We look forward to visiting the Discovery Center! **Thank you for offering so many amazing resources and being an encouragement to biblical homeschooling!**

— D. J.



I’m in the process of watching *Unlocking the Mysteries of*

Genesis through RightNow Media with my 15- and 12-year-old children. We’ve currently watched the first two discs. I’m really impressed with the video content, quality, and message. I’ve seen other creation videos in the past from various organizations. **This video series is the best I’ve seen.** First, the video

quality is extremely well done—high-definition, engaging, with a lot of variety. Second, the information is superb. I especially like the non-



This article makes great points about animal teeth.

— T. S.

Have a comment?
Email us at Editor@ICR.org
or write to Editor,
P. O. Box 59029, Dallas, Texas 75229.
Note: Unfortunately, ICR is not able to respond to all correspondence.

NEW!

Little Creation Books!



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

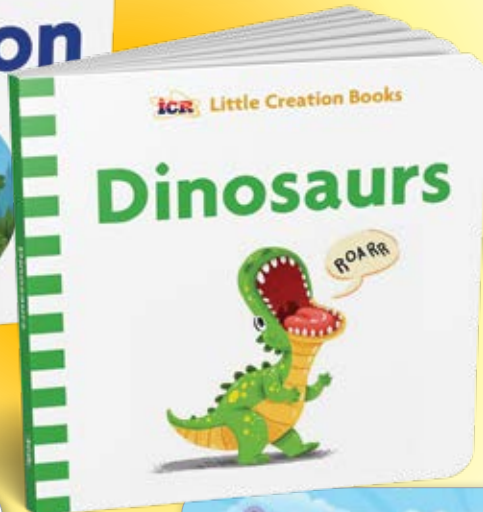
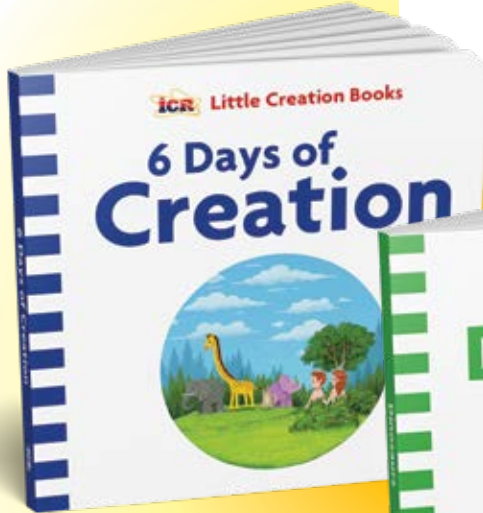
How do we help our kids separate fact from fiction? By laying a solid foundation of truth during their earliest years. ICR developed the Little Creation Books series to help you teach creation basics to your preschooler.

6 Days of Creation

\$5.99

B6DOC

From the stars in the sky to the land, animals, and people, God created it all in six days. Explore God's very good creation in this sturdy little book that introduces our youngest children to their very big Creator.

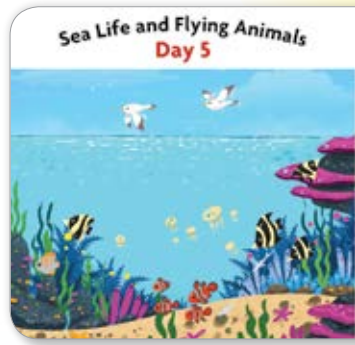


Dinosaurs

\$5.99

BD

Some dinosaurs were big, and some were small. And yes, it's true God made them all! In this book, children will discover dinosaurs at creation, on the Ark, and in the ground.



God made animals that live in the water and fly in the air.



Dinosaurs and people were created on the same day.

They lived at the same time.



Call **800.628.7640** or visit **ICR.org/store** | Please add shipping and handling to all orders. Offer good through April 30, 2019, while quantities last.