ACTS & FACTS

INSTITUTE FOR CREATION RESEARCH

ICR.org

MAY 2018

VOL. 47 NO. 5

In Business for Christ
page 5

Is the Y Chromosome Shrinking?
page 8

Time and Creation
page 14

The Designed Interface of the Eye's Microbiome
page 16

Buy Both SCIENCE FOR KIDS Books and Save 25%!

$13.49
~~$17.98~~
PSFK

2-pack special!

SPACE
GOD'S MAJESTIC HANDIWORK

$8.99
(if purchased separately)
BSGMH

Did the universe begin with a Big Bang or God's creative design? In *Space: God's Majestic Handiwork,* you'll find the answer to this question and more!

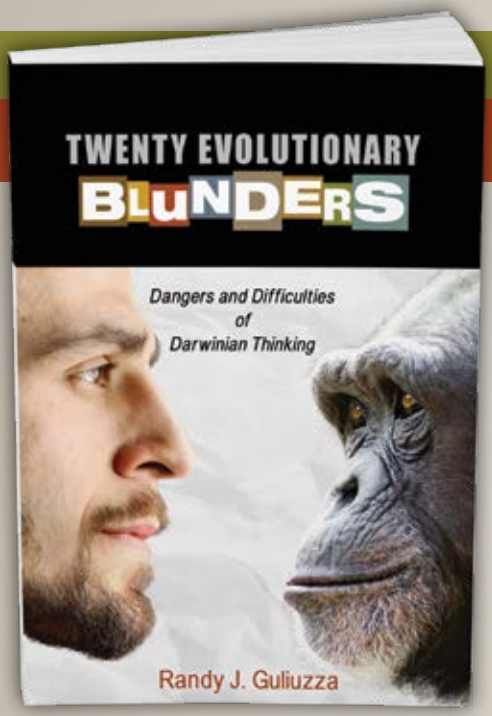
DINOSAURS
GOD'S MYSTERIOUS CREATURES

$8.99
(if purchased separately)
BDGMC

What were dinosaurs? When did they live? *Dinosaurs: God's Mysterious Creatures* answers these questions and more!

Call **800.628.7640** or visit **ICR.org/store**

Please add shipping and handling to all orders.
Offer good through May 31, 2018, while quantities last.



TWENTY EVOLUTIONARY BLUNDERS

Dangers and Difficulties of Darwinian Thinking

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

$9.99 BTEB

Darwinism has ruled science for over 150 years, but few today know the details of its less-than-stellar track record. Its proponents offer false predictions and plug colossal gaps of evidence with pure imagination. In *Twenty Evolutionary Blunders*, Dr. Randy Guliuzza shines a light on many of these shortcomings. Rather than supporting Darwin's theory, an honest look at the evidence consistently undermines it.

ACTS & FACTS

VOLUME 47 NUMBER 5

MAY 2018

Published by

INSTITUTE FOR CREATION RESEARCH

P. O. Box 59029

Dallas, TX 75229

214.615.8300

ICR.org

EXECUTIVE EDITOR

Jayme Durant

SENIOR EDITOR

Beth Mull

EDITORS

Michael Stamp

Truett Billups

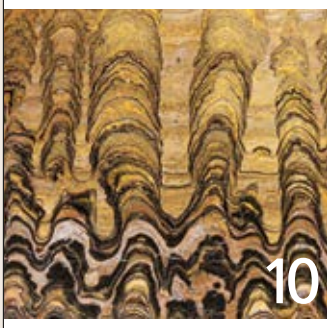
Christy Hardy

DESIGNER

Dennis Davidson

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

Cover image credit: Anton Samsonov / Alamy Stock Photo



feature

5 In Business for Christ

DAN FARELL

research

8 Is the Y Chromosome Shrinking?

JERRY BERGMAN, PH.D.

impact

10 Stromatolites: Evidence of Pre-Flood Hydrology

TIM CLAREY, PH.D.

back to genesis

14 Time and Creation

BRIAN THOMAS, M.S.

16 The Designed Interface of the Eye's Microbiome

FRANK SHERWIN, M.A.

17 Designed Mechanisms Best Explain Convergent Traits

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

creation q & a

20 Are Evolution and Adaptation the Same?

JEFFREY P. TOMKINS, PH.D.

apologetics

21 Viking Bones Contradict Carbon-14 Assumptions

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

stewardship

22 Don't Miss the Joy

HENRY M. MORRIS IV

from the editor

Lights Around the World

I'd like to introduce you to one of the Institute for Creation Research's leaders—Dan Farell fills an important position of influence as an ICR board member. He oversees the decision-making for ICR's direction and management with a team of other Christian leaders who are committed to sharing God's truths about creation with the world. We are so fortunate to work with him and the other board members at the helm of ICR.

Dan says, "You may know men and women in business whose witness is much like these five [examples of Christian business leaders]—the Lord has sprinkled these lights across the country. Christians in business…contributed to its ethical and moral underpinnings" (page 6). His words are a call to those of us who have put our faith in Jesus Christ to be a witness in our own spheres, wherever they may be.

You may not run a business or manage a megafirm, but God has placed you uniquely where you are to touch the lives within your circle. God has given you a place of influence—you are one of these lights not only across the country but around the world.

What are you doing with that opportunity? Your sphere of influence may include your home, church, school, and community as well as your coworkers. God has specially gifted and prepared you to impact those He brings to you, and you are His witness to them.

I think about the early followers of Christ who reached out to those around them. Peter, who went to get his brothers. The men who lowered their paralyzed friend through a roof to bring him to Jesus. The Samaritan woman at the well, who left her water pots to tell the people of her town about her encounter with the Messiah. These believers could not stop talking about what they had seen and heard (Acts 4:20).

At ICR, we see and hear a lot about God's wonders in creation. Our scientists are immersed in discovering new details about many areas of science, and we all marvel at God's truth woven throughout each find. And then, each of us gets to go out and tell others about these discoveries.

You'll be amazed at what zoologist Frank Sherwin shares in his article about the eye ("The Designed Interface of the Eye's Microbiome," page 16). He sheds light on God's design in the human body. Dr. Randy Guliuzza, a medical doctor and professional engineer who served in the Air Force, travels the United States as ICR's National Representative. He has a big stretch of the country to light up—his world is made up of doctors, engineers, military personnel, church members, and people who sit next to him on planes. His article "Designed Mechanisms Best Explain Convergent Traits" demonstrates how God has ingeniously programmed creatures to adapt to changing environments (page 17). Geneticist Dr. Jeffrey Tomkins addresses a common question about evolution and adaptation—are they the same? He reminds us that the "facts of science clearly point to the wonderful engineering of an all-powerful Creator" (page 20).

Whether you are a scientist or a businessperson or a mom volunteering your time at church, you have a position of influence. Each day is an opportunity to shine your light for Christ.

Jayme Durant

Jayme Durant
Executive Editor

IN BUSINESS *for Christ*

DAN FARELL

article highlights

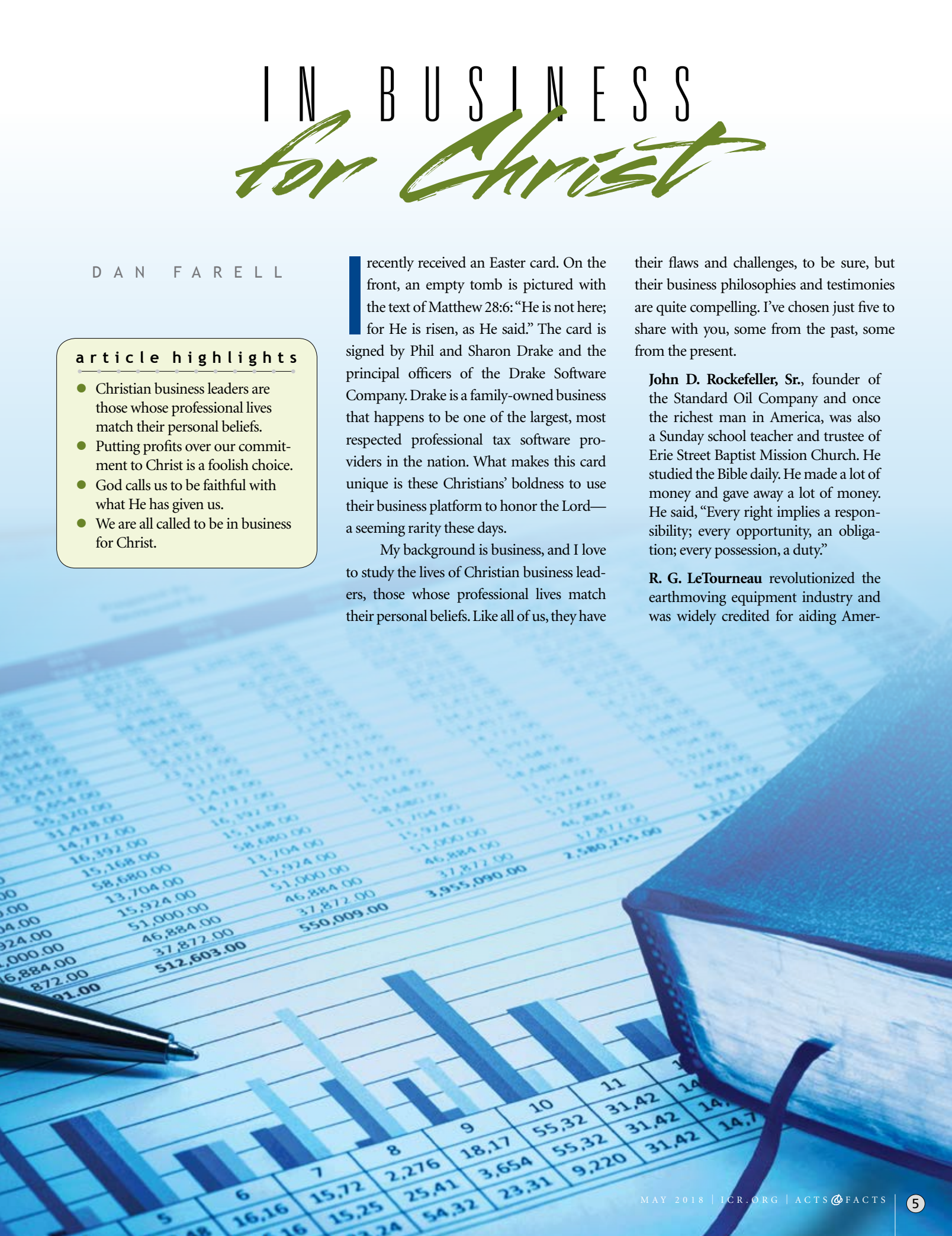
- Christian business leaders are those whose professional lives match their personal beliefs.
- Putting profits over our commitment to Christ is a foolish choice.
- God calls us to be faithful with what He has given us.
- We are all called to be in business for Christ.

I recently received an Easter card. On the front, an empty tomb is pictured with the text of Matthew 28:6: "He is not here; for He is risen, as He said." The card is signed by Phil and Sharon Drake and the principal officers of the Drake Software Company. Drake is a family-owned business that happens to be one of the largest, most respected professional tax software providers in the nation. What makes this card unique is these Christians' boldness to use their business platform to honor the Lord—a seeming rarity these days.

My background is business, and I love to study the lives of Christian business leaders, those whose professional lives match their personal beliefs. Like all of us, they have their flaws and challenges, to be sure, but their business philosophies and testimonies are quite compelling. I've chosen just five to share with you, some from the past, some from the present.

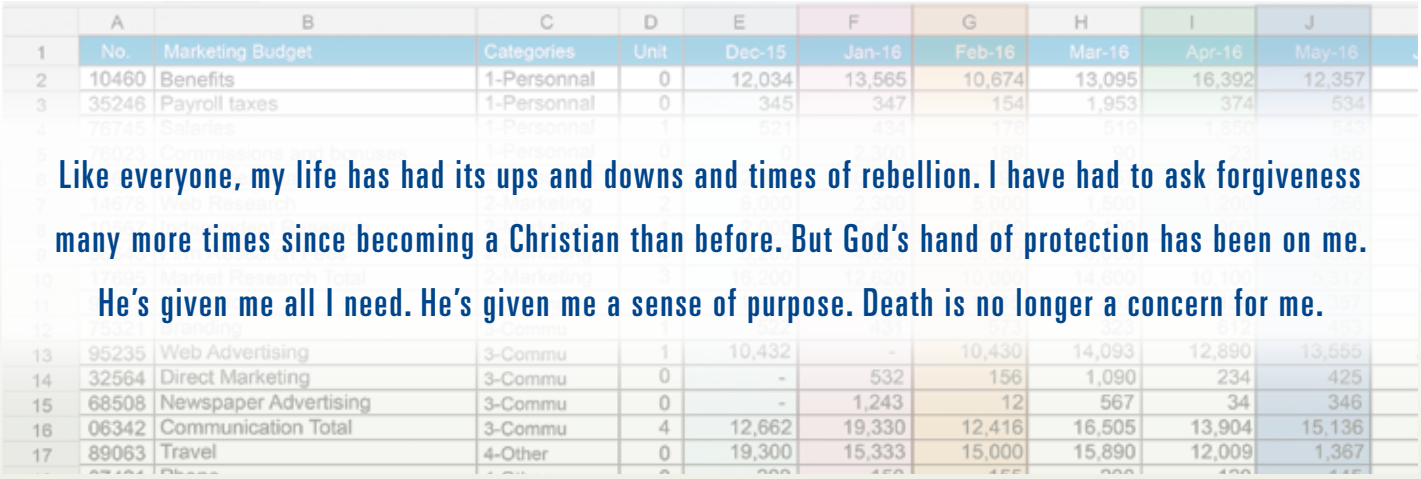
John D. Rockefeller, Sr., founder of the Standard Oil Company and once the richest man in America, was also a Sunday school teacher and trustee of Erie Street Baptist Mission Church. He studied the Bible daily. He made a lot of money and gave away a lot of money. He said, "Every right implies a responsibility; every opportunity, an obligation; every possession, a duty."

R. G. LeTourneau revolutionized the earthmoving equipment industry and was widely credited for aiding Amer-



ica's effort during World War II. He supported numerous Christian causes and served as President of Gideons International. He also committed to "reverse tithe"—giving 90% of his income to God and keeping 10% to live on! He said, "I shovel [money] out, and God shovels it back…but God has a bigger shovel!"

Truett Cathy founded Chick-fil-A in 1946 and taught Sunday school at First Baptist Church in Jonesboro, Georgia, for more than 50 years. To this day, his stores are closed on Sundays so all employees have the opportunity to rest and worship. Cathy once said, "If you wish to enrich days, plant flowers; if you wish to enrich years, plant trees; if you wish to enrich eternity, plant ideals in the lives of others."



	A	B	C	D	E	F	G	H	I	J
1	No.	Marketing Budget	Categories	Unit	Dec-15	Jan-16	Feb-16	Mar-16	Apr-16	May-16
2	10460	Benefits	1-Personnal	0	12,034	13,565	10,674	13,095	16,392	12,357
3	35246	Payroll taxes	1-Personnal	0	345	347	154	1,953	374	534
13	95235	Web Advertising	3-Commu	1	10,432	-	10,430	14,093	12,890	13,565
14	32564	Direct Marketing	3-Commu	0	-	532	156	1,090	234	425
15	68508	Newspaper Advertising	3-Commu	0	-	1,243	12	567	34	346
16	06342	Communication Total	3-Commu	4	12,662	19,330	12,416	16,505	13,904	15,136
17	89063	Travel	4-Other	0	19,300	15,333	15,000	15,890	12,009	1,367

Like everyone, my life has had its ups and downs and times of rebellion. I have had to ask forgiveness many more times since becoming a Christian than before. But God's hand of protection has been on me. He's given me all I need. He's given me a sense of purpose. Death is no longer a concern for me.

David Green, founder of the Hobby Lobby arts and crafts stores, was the driving force behind the Museum of the Bible in Washington, D.C. As an accomplished businessman, he said, "There is a God, and he's not averse to business. He's not just a 'Sunday deity.' He understands margin and spreadsheets, competition and profits."[1]

Norm Miller is the chairman of Dallas-based Interstate Batteries. He gives God credit for dramatically changing his life. In 2008, he launched the I Am Second movement, which became a powerful platform for evangelism. He says, "As I got more successful in the business and people knew I was a Christian, I started to get more involved in speaking. I decided I would just give my testimony and try to lead people to Christ."[2]

You may know men and women in business whose witness is much like these five—the Lord has sprinkled these lights across the country. Christians in business helped make America great and contributed to its ethical and moral underpinnings.

They learned from the Scriptures that God desires us to seek contentment and avoid strife in our business dealings, and that diligence and generosity in our business affairs often lead to success. But they also learned that success can lead to pride, so we must be careful to keep the perspective that all our blessings come from God and not from ourselves. The Bible cautions against dishonest business practices, and we must not use our positions to oppress others.

Conflicts between faith and business rise to the top when money and special interests are involved. And sometimes we have to pay the price for our convictions. No one knows that better than Jack Phillips, owner of Masterpiece Cakeshop in Lakewood, Colorado. In July 2012, due to his Christian convictions, he declined the request of two men to create a wedding cake to celebrate their same-sex "marriage." Phillips was hauled before the Colorado Civil Rights Commission and has been subjected to over five years of litigation. He awaits a ruling from the U.S. Supreme Court on whether he is free to exercise his freedom of conscience by declining to bake a cake!

A fascinating account in Acts 19 centers around a man in the city of Ephesus named Demetrius. He had a lucrative business making miniature silver shrines of the goddess Diana as objects of worship. He was successful and influential by the world's standards. Unfortunately, his business and his wealth were built on a lie—the lie of a false god.

When the apostle Paul showed up in that city, revival broke out. "God worked unusual miracles by the hands of Paul" (Acts 19:11). Many Ephesians repented and some even brought their magic books and false idols and burned them.

In response, Demetrius called a meeting of the silver guild and declared an emergency. Their business was being threatened by the gospel Paul preached. Paul was persuading the people to abandon their idols, "saying that they are not gods which are made with hands" (Acts 19:26). For Demetrius and his cohorts, truth was secondary. Their driving issue was "We're going to lose money!" A riot broke out and confusion reigned.

We have different gods today—and different goods and services. But the core issue is the same, and it forces us to make a decision: Do we choose business profits or the truth of the gospel? In today's world, profits usually win that argument. That's why abortion and pornography are big, profitable industries!

But putting profits over our commitment to Christ is a foolish choice. Judas Iscariot made the worst business deal in history. He sold out His Lord for 30 pieces of silver.

My Story

After working in corporate finance, I began financial planning and counseling for individuals. It's something I love and feel called to.

In both these arenas, I've observed people from all walks of life. Some struggle financially while others have large bank accounts. Yet, I often see a common thread among them—emptiness, a lack of purpose, greed, fear, anxiety, a lack of discipline, a lack of confidence, no joy, no peace. And most frightening, no assurance of their future.

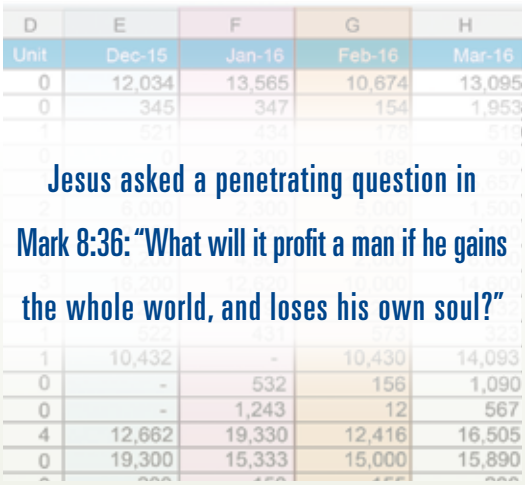
To cope, they pursue more wealth, more power, more debt, more everything! Many deny there's a problem. But none of these things satisfy the real need of people.

I grew up in a rural community in a solid and loving churchgoing family. By man's standards, I had everything I needed. But I was lost, and when I was seven the certainty of death became real the moment I lost my grandmother.

A few weeks after her sudden passing, my pastor came into the Sunday school classroom of our little country church. He asked us to pay close attention for a few minutes. He opened the Bible and explained that we were separated from God by sin regardless of how good we were (Romans 3:23). Death was the penalty for our sin (Romans 6:23; Hebrews 9:27). God knew this was unavoidable and provided a way for Jesus Christ, His Son, to die in our place (Romans 5:8). He died out of His deep love for us so we could have eternal life with Him—even after we die (John 3:16). Finally, our pastor told us that God does not force Himself on us but rather extends His invitation to us to follow Him and accept His gift of salvation (Romans 10:9, 13). I accepted that gracious invitation, and at seven years of age I became a Christ-follower. That turned out to be the most important decision of my life.

Like everyone, my life has had its ups and downs and times of rebellion. I have had to ask forgiveness many more times since becoming a Christian than before. But God's hand of protection has been on me. He's given me all I need. He's given me a sense of purpose. Death is no longer a concern for me. I share the same apprehensions that anyone else does as that day approaches. But I have Jesus' promise in John 11:25: "I am the resurrection and the life. He who believes in Me, though he may die, he shall live."

The salvation God offers is the same for all. We must all come to Him in humility, repentance, and faith for salvation.



D	E	F	G	H
Unit	Dec-15	Jan-16	Feb-16	Mar-16
0	12,034	13,565	10,674	13,095
0	345	347	154	1,953
1	521	434	178	515
0	0	2,000	186	90
2	6,000	2,340	5,000	1,600
1	10,200	12,000	10,000	14,000
1	822	431	573	523
1	10,432	-	10,430	14,093
0	-	532	156	1,090
0	-	1,243	12	567
4	12,662	19,330	12,416	16,505
0	19,300	15,333	15,000	15,890

Jesus asked a penetrating question in Mark 8:36: "What will it profit a man if he gains the whole world, and loses his own soul?"

Institute for Creation Research

I was aware of ICR founder Dr. Henry Morris' ministry for years. I knew he was a scientist and a strong defender of biblical creation. That was enough to draw my wife, Linda, and me to the Genesis class taught by his son, Dr. Henry Morris III, when it began in our church, First Baptist Dallas, in 2007.

After covering the first 11 chapters of Genesis, the class continued by popular demand, and in the process I have grown to love Dr. Morris, the whole Morris family, and the ministry of ICR.

In 2009, Linda and I went on an ICR creation tour to Yosemite National Park where we received an in-depth field education from a creation worldview from experts in geology, hydrology, and biology. Soon after, I completed ICR's Creationist Worldview course. Somewhere along the way, I began advising the ministry on investment management. I ultimately joined the ICR board in 2011.

Even though we may not have the resources of a Rockefeller, God calls us to be faithful with what He has given us. I've chosen to invest my time, energy, and resources into God's Kingdom through ICR because creation ministry is so important. Creation is important because, first of all, God's Word presents it as truth—not just in the opening chapter of Genesis, but from cover to cover. Second, I am convinced creation offers the best scientific explanation for the universe, including how it came to be, how it is sustained, and why it is the way it is.

For anyone willing to commit the time, the study of God's creation is an enormous confidence builder when it comes to answering any question concerning the Bible and the Christian faith. That's why I'm anxious to see the opening of the ICR Discovery Center for Science and Earth History. I want each of my 17 grandchildren to gain their own confidence that what God says is reliable. I know the discovery center will be instrumental in fulfilling that goal.

Jesus asked a penetrating question in Mark 8:36: "What will it profit a man if he gains the whole world, and loses his own soul?" That is a fitting question for every businessman and businesswoman. The answer, of course, is nothing. The person who would do so, like Judas, is a fool. So, how will you invest in His Kingdom? And what will your profit be? We are all called to be in business for Christ.

References

1. Green, D. 2005. *More Than a Hobby: How a $600 Start-up Became America's Home & Craft Superstore.* Nashville, TN: Thomas Nelson Inc., 198.
2. Bonham, C. A conversation with Interstate Batteries CEO Norm Miller. Beliefnet. Posted on beliefnet.com June 2013, accessed March 29, 2018.

Dan Farell is a board member and trustee at the Institute for Creation Research, as well as a member of First Baptist Dallas. He owns Farell Financial Advisory Services in Dallas, Texas.

JERRY BERGMAN, PH.D.

Is the Y Chromosome Shrinking?

Evolutionary scientists claim that the human male chromosome—the Y chromosome—is shrinking.[1] Some even predict it will eventually disappear and the genes it currently contains will all somehow be transferred to other chromosomes.[2]

This idea is based on evaluations of modern X and Y sex chromosomes that evolutionists think resulted from an original common ancestral pair of identical chromosomes. They speculate that over long ages "genes have been lost from the Y chromosome in humans and other mammals….[but] essential Y genes are rescued by relocating to other chromosomes."[3] This conclusion was largely based on a study by Jennifer Hughes and her team. The study used the assumption that "the mammalian X and Y chromosomes evolved from a single pair of autosomes [non-sex chromosomes]."[4]

article highlights

- Some evolutionists claim the Y chromosome is shrinking.
- They predict it will eventually disappear and its genes will somehow move to other chromosomes.
- These claims are based on evolutionary assumptions rather than observations.
- The Y chromosome is not shrinking—it functions exactly the way God made it.

A problem is, even assuming evolution occurred, we have no knowledge of the common ancestor of mammals, although several candidates have been proposed. One of the more recent is a "tiny, furry-tailed creature that evolved shortly after the dinosaurs disappeared."[5] This 2013 conclusion was considered so radical that some mammalian experts called "for a reevaluation of the evolutionary story of placental mammals."[5] If we cannot decide which animal was the last common ancestor of mammals, how can we begin to determine its genome?

The Hughes study analyses used genetic data downloaded from GenBank, the National Institutes of Health's public DNA database. Short gene sections called *primers* that bind only to chromosome sections with a high degree of sequence complementarity were used to locate genes of interest on the autosomes. The researchers compared "human, chimpanzee, rhesus macaque, marmoset, mouse, rat, cattle, and opossum" chromosomes.[4]

All the Hughes team found was the existing location of certain genes in a select few living mammals.[4] The only way to theoretically document the translocation claims is to sequence the actual genes of the mythical common ancestor—which does not exist—and then do the same comparisons Hughes completed to determine their location changes. From this comparison one could determine which genes were lost, which were gained, or which moved to other locations, assuming the X and Y chromosomes were once identical.

But what if the two chromosomes were not originally identical and no Y chromosome "loss" has occurred? I am researching from the perspective that purposeful function exists for the different locations on the autosomes of the various genes identified as once existing on the Y chromosome. Just as word order is critical to the meaning of an English sentence, likewise gene location order has long been known to be important for regulation that produces morphological differences.[6] The animals evaluated all have clear behavioral and morphological sexual variations, especially the placental and marsupial animals. Any gene location differences found may contribute to our overall understanding of genetic function if their position is related to behavioral and morphological differences.[7]

This Y chromosome claim is an example of evolutionary assumptions redirecting investigation away from potentially productive research to speculative unproductive research. Rather than shrinking and losing function, the Y chromosome operates exactly as God designed it.

References

1. Jones, S. 2003. *Y: The Descent of Men*. Boston: Houghton Mifflin.
2. Griffin, D. and P. Ellis. The Y chromosome is disappearing – so what will happen to men? *The Conversation*. Posted on theconversation.com January 17, 2018, accessed March 3, 2018.
3. Sex Chromosomes – Why the Y genes matter. BioMed Central. Posted on biomedcentral.com May 28, 2015, accessed March 3, 2018.
4. Hughes, J. F. et al. 2015. Sex chromosome-to-autosome transposition events counter Y-chromosome gene loss in mammals. *Genome Biology*. 16: 104.
5. Perkins, S. Ancestor of All Placental Mammals Revealed. *Science*. Posted on sciencemag.org February 7, 2013, accessed March 3, 2018.
6. Sankoff, D. et al. 1992. Gene order comparisons for phylogenetic inference: evolution of the mitochondrial genome. *Proceedings of the National Academy of Sciences*. 89 (14): 6575-6579; Dressler, G. R. and P. Gruss. 1989. Anterior boundaries of *Hox* gene expression in mesoderm-derived structures correlate with the linear gene order along the chromosome. *Differentiation*. 41 (3): 193-201.
7. Bachtrog, D. et al. 2008. Genomic degradation of a young Y chromosome in *Drosophila miranda*. *Genome Biology*. 20089 (9): R30.

Dr. Bergman is Research Associate at the Institute for Creation Research and Adjunct Associate Professor at the University of Toledo Medical School in Ohio.

MAY

2-5 Chesapeake, VA | Tidewater Baptist Church | (F. Sherwin) 757.545.7282

5-6

MAY 5–6

Made in His Image Seminar

Hammond, IN

605 165th Street
Hammond, IN 46324
219.931.5177

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

Jerry Bergman, Ph.D.

20 Tampa, FL | Bayside Community Church | (J. Johnson) 813.837.6007

SAVE THE DATE | JULY 29 – AUGUST 2

GRAND CANYON ADVENTURE RAFT TRIP

WITH LANDMARK EVENTS

ICR has been exploring and researching Grand Canyon for 35 years! Back in 1983, we made the first of many excursions through the wonder of God's creation. Frank Sherwin, veteran of a dozen Grand Canyon trips, will be your guide on this trip-of-a-lifetime creation journey.

Price includes accommodation for five nights, all transportation, tours, and meals!
Use Promo Code "ICR" and save $100.00 per person.
(Type ICR into the promotions box at checkout.)

Frank Sherwin, M.A.

LANDMARK Events

landmarkevents.org/grandcanyon

SAVE THE DATE | August 13, 20, 26
Denton, TX | Denton Bible Church | (R. Guliuzza, B. Thomas, J. Williams) 940.297.6700

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

TIM CLAREY, PH.D.

Stromatolites: Evidence of Pre-Flood Hydrology

article highlights

- Stromatolites are biomats made up of algae and sediment.
- Few stromatolites live on Earth today, but fossils show they were abundant in the past.
- Evolutionists can't explain how stromatolites could have evolved so quickly and then remained unchanged ever since.
- The evidence of fossil stromatolites all over the world matches the Bible's description of the environment of the pre-Flood world.

Stromatolites are some of the more puzzling fossils found throughout Earth's rock record. They are fairly common in the oldest known sedimentary rocks, but living stromatolites only occur in rare isolated places in the world today. Only special conditions seem to allow these organisms to flourish, often involving unusual water chemistry. Uniformitarian scientists have struggled to explain their abundance in the ancient rocks and their paucity today.

The *Glossary of Geology* defines a stromatolite as "an organosedimentary structure produced by sediment trapping, binding, and/or precipitation as a result of the growth and metabolic activity of micro-organisms, principally cyanophytes (blue-green algae [cyanobacteria])."[1] The result is a finely laminated biomat that forms a mounded structure (Figure 1). This structure is not composed of the bacteria themselves but instead is a sediment-trapping mat formed by "biologically…mediated mineral precipitation."[2]

Stromatolites were first identified in the early 1900s in Paleoproterozoic rocks in Ontario, Canada, by Charles Walcott, former director of the United States Geological Survey. He thought the mounded structures were some type of ancient reef derived from algae. It wasn't until the 1950s that paleontologists determined that stromatolites were in fact the products of biological activity.[3] This was confirmed by the discovery of living stromatolites that same decade in Australia (Figure 1). However, a few recent authors have again suggested that some fossil stromatolites could have had a nonbiological origin.[4,5]

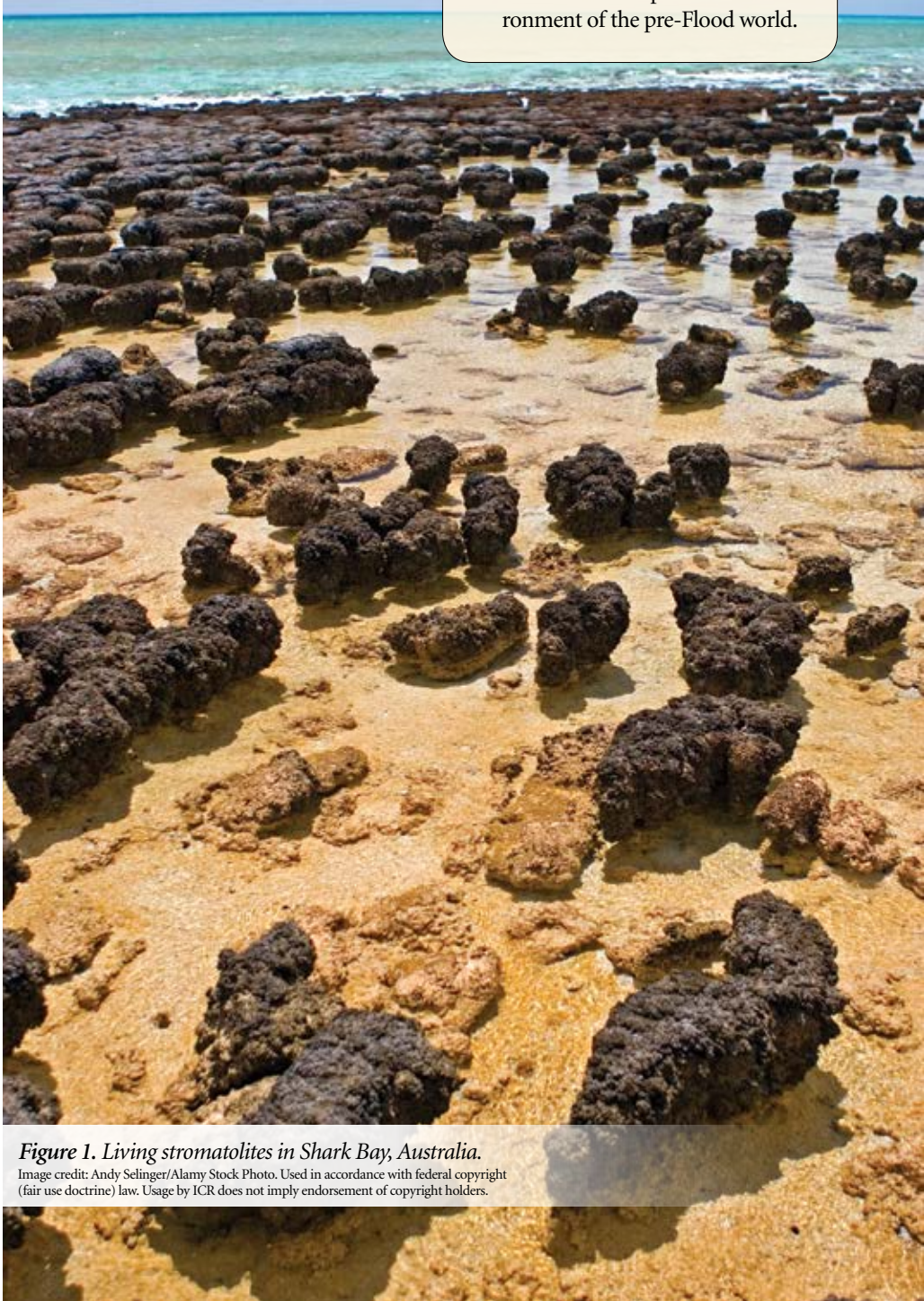


Figure 1. *Living stromatolites in Shark Bay, Australia.*
Image credit: Andy Selinger/Alamy Stock Photo. Used in accordance with federal copyright (fair use doctrine) law. Usage by ICR does not imply endorsement of copyright holders.

Stromatolites Create an Evolutionary Conundrum

Evolutionary scientists claim stromatolites were some of the earliest life on Earth, dating them back as far as 3.7 billion years.[6] The oldest undisputed stromatolites, from the Warrawoona Group in Australia, are dated by secular scientists as 3.3 to 3.5 billion years old.[3] Fossil stromatolites are found all over the world in Archean and Proterozoic carbonate rocks (usually dolomite) and to a lesser extent in Cambrian and later strata (Figure 2). Evolutionary scientists have tried to explain the rapid decline in stromatolites in post-Cambrian rocks by attributing it to the sudden appearance of grazing organisms that presumably eat cyanobacteria.[2]

Figure 2. Fossil stromatolites.
Image credit: Armands Pharyos/Alamy Stock Photo. Used in accordance with federal copyright (fair use doctrine) law. Usage by ICR does not imply endorsement of copyright holders.

Because secular scientists believe stromatolites evolved about 3.7 billion years ago, it creates a significant problem for them in the timing of the origin of life on Earth.[7] How could cyanobacteria have evolved so quickly? Life would have had to originate and develop the ability to photosynthesize and colonize in less than a billion years, assuming the earth is 4.55 billion years old.

But these scientists also believe that between 4.1 and 3.8 billion years ago Earth underwent a massive bombardment by meteorites, termed the Late Heavy Bombardment.[4] This bombardment episode is supposed to have been a time of severe meteorite impacts striking Earth and the moon. These impacts would have obliterated much of Earth's crust and any forms of life that existed before 3.8 billion years ago.

Secular scientists have, in effect, painted themselves into a corner. How can they explain the formation of the atmosphere, the oceans, the mysterious process of abiogenesis, and the ability to photosynthesize in a window of just 100 million years? Photosynthesis alone is an exceedingly complex process. For the evolutionist, this is a ridiculously short amount of time for this cascade of events to have occurred.[7,8]

Stromatolites Are Living Fossils

Although secular science claims they go back billions of years, stromatolites show little if any evidence of evolution and no indication of great age. Modern stromatolites are considered an example of a living fossil, like the coelacanth. They seem to have thrived without any evolutionary change.

Until 1956, scientists believed stromatolites were extinct. That's when they discovered living stromatolites thriving in Shark Bay, Australia, in specialized, hypersaline (salty) waters.[9] Since that time, living stromatolites have been found in highly saline marine environments in the Bahamas and in atolls in the Central Pacific. They have even been found in freshwater lakes and streams in Spain, Canada, Germany, France, Australia, and Japan. Although these are freshwater bodies, they all have unusual water chemistry that allows the stromatolites to thrive.[2,9]

Scientists are now finding living stromatolite colonies in even more diverse environments. The latest research has identified them living on land in Australia in what has been termed a peat-bound wetland.[2] Bernadette Proemse and her colleagues from the University of Tasmania, Australia, were the first to identify stromatolites living as "smooth mats of yellowish and greenish, globular structures growing on the wetted surface of tufa barriers."[2] The stromatolites were not submerged in water but rose above the surface of a calcium-rich, spring-fed ecosystem. This discovery means that living stromatolites are likely more common than previously thought. It may just be that scientists haven't been looking for them on land near freshwater springs.

Stromatolite Fossils Confirm the Presence of Springs in the Pre-Flood World

Recently, the ICR research team presented an interpretation of the pre-Flood geography based on a study of Flood sediments and their relative stratigraphic thicknesses. We assembled the map using data from over 1,500 stratigraphic columns spanning three continents.[10] We chose a Pangaea-like configuration for our pre-Flood continents since that seems to best match the empirical data.

Using this map, the research team plotted the locations of many of the known Precambrian stromatolite fossil locations across

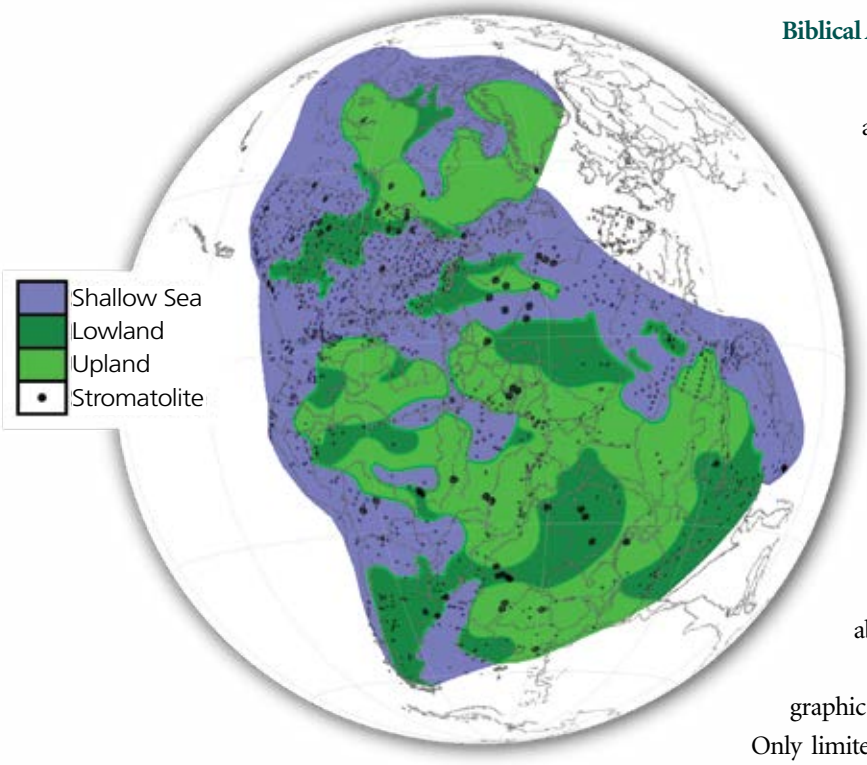


Figure 3. *Pre-Flood geographic map of North America, South America, and Africa in an assumed Pangaea-like configuration, showing the locations of many of the Precambrian stromatolites. Stromatolite locations courtesy of Jesse Dieterle.*

Map courtesy of Davis J. Werner.

the world (Figure 3). Our completed stratigraphic study only covers North America, South America, and Africa to date, but we expect the locations of stromatolites will be much the same over the remainder of the globe.

An examination of the map shows that the stromatolites seem to follow no particular environmental pattern. Their locations are found in regions that are interpreted as pre-Flood shallow seas, lowlands, and upland environments. Before the recent discovery of stromatolites on land, this interpretation would have seemed to be faulty. But now that modern stromatolites have been found living in fresh water, salt water, and also on land, it is not surprising that pre-Flood stromatolites existed in all types of environments. God tells us in Genesis 2:6 that before the Flood "a mist went up from the earth and watered the whole face of the ground."

If our data-based interpretation is correct, the presence of fossil stromatolites confirm the pre-Flood hydrology as described in Genesis. That world must have had springs in great abundance to support the prevalence of stromatolites on every continent and in every type of environment. The springs watered both the uplands and the lowlands, providing mineral-rich waters in which the stromatolites thrived. God also created the perfect environments for stromatolites to grow in the pre-Flood shallow seas. These were also possibly fed by springs that provided hypersaline conditions similar to those found in Shark Bay today.

Biblical Account Confirmed by Science

The history of stromatolites fits best with a recent creation and Flood as described in the Bible. Most creation scientists believe God created stromatolites as part of the original creation, probably on Day 3 of the creation week when He made plants. Stromatolites apparently proliferated in special pre-Flood environments and grew extensively during the 1,650 years or so between creation and the Flood.

Furthermore, creation scientists have proposed that the catastrophic nature of the Flood reshaped Earth's surface sufficiently to destroy the pre-Flood environments where stromatolites formerly thrived.[11] Today, it's only in specialized environments that stromatolites are able to exercise their mat-making abilities and grow, whether on land or in the ocean.

The Flood also destroyed much of the pre-Flood stratigraphic record that contained the majority of the stromatolites. Only limited exposures of these ancient rocks are found globally in Archean and Proterozoic rocks. Of course, many likely remain covered by later Flood sediments, and others were undoubtedly destroyed by high heat and pressures associated with rapid plate motion and volcanism during the Flood event. But there are enough remnants preserved to indicate their abundance.

These recent discoveries demonstrate the accuracy and trustworthiness of God's Word. Some people claim there are errors in the Bible and that its depiction of Earth history shouldn't be trusted because it isn't a science book. Yet, again and again true science demonstrates the truth of the biblical record. When the Bible discusses science, it is always shown to be correct, right down to the smallest detail.

References

1. Neuendorf, K. K. E., J. P. Mehl, Jr., and J. A. Jackson, eds. 2005. *Glossary of Geology*, 5th ed. Alexandria, VA: American Geological Institute, 636.
2. Proemse, B. C. et al. 2017. Stromatolites on the rise in peat-bound karstic wetlands. *Scientific Reports.* 7: 15384.
3. Wicander, R., and J. S. Monroe. 2016. *Historical Geology: Evolution of Earth and Life Through Time*, 8th ed. Boston, MA: Cengage Learning.
4. Lowe, D. R. 1994. Abiological origin of described stromatolites older than 3.2 Ga. *Geology.* 22 (5): 387-390.
5. Hladil, J. 2005. The formation of stromatactis-type fenestral structures during the sedimentation of experimental slurries—a possible clue to a 120-year-old puzzle about stromatactis. *Bulletin of Geosciences.* 80 (3): 193-211.
6. Mueller, P. A., and A. P. Nutman. 2017. The Archean-Hadean Earth: Modern paradigms and ancient processes. In *The Web of Geological Sciences: Advances, Impacts, and Interactions II.* M. E. Bickford, ed. Boulder, CO: Geological Society of America Special Paper 523, 75-237.
7. Tomkins, J. P. and T. Clarey. Cellular Evolution Debunked by Evolutionists. Creation Science Update. Posted on ICR.org September 29, 2016, accessed March 10, 2018.
8. Awramik, S. M. and K. Grey. 2005. Stromatolites: biogenecity, biosignatures, and bioconfusion. *Proceedings of the SPIE.* 5906: 1-9.
9. Frazer, J. Stromatolites Defy Odds by A) Living B) on Land. *Scientific American.* Posted on blogs.scientificamerican.com December 21, 2017, accessed January 4, 2018.
10. Clarey, T. 2018. Assembling the Pre-Flood World. *Acts & Facts.* 47 (4): 11-13.
11. Purdom, G. and A. A. Snelling. 2013. Survey of Microbial Composition and Mechanisms of Living Stromatolites of the Bahamas and Australia: Developing Criteria to Determine the Biogenicity of Fossil Stromatolites. In *Proceedings of the Seventh International Conference on Creationism.* M. Horstemeyer, ed. Pittsburgh, PA: Creation Science Fellowship.

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

ICR Discovery Center Update

Progress continues at the ICR Discovery Center for Science and Earth History. Even scientists and scholars will be able to learn here, along with kids and their parents and grandparents. We'll have something for everyone!

The planetarium's exterior nears completion. Now we will focus on the interior exhibits.

ICR commissioned a well-known artist to create a 24-foot DNA sculpture for the discovery center's outdoor fountain.

Discover a T. rex *at the ICR Discovery Center!*

Help Us Complete the ICR Discovery Center's Exhibits

As we build the ICR Discovery Center, we're raising funds for the interior exhibits. We're developing the most educational and inspirational exhibits possible. Together, let's point people to the truth of our Creator, the Lord Jesus Christ.

Visit **ICR.org/DiscoveryCenter** to find out how you can join us in this vital project. Partner with us in prayer and help us finish strong!

"The development of the ICR Discovery Center will be a powerful new tool for us as we lead others to Christ and help individuals and families grow in their faith. Mark 16:15 says, 'Go into all the world and preach the gospel to every creature.' The new ICR Discovery Center will become a key asset and partner for many Christians and churches in both evangelism and discipleship, not only in the Dallas/Fort Worth area but all over the United States and the world."

— Jeffrey Tomkins, Ph.D.

"I've been working on the various informational tasks for the discovery center, and even though I'm very familiar with the material, I'm surprised at how much I'm learning! It takes me back to my college days. I can see the center will be a learning feast for visitors!"

— Jerry Bergman, Ph.D.

"Are you fed up with the pro-evolutionary bias found in nearly all major science museums? Help us do something about it. We are in the process of constructing the ICR Discovery Center for Science and Earth History here in Dallas that will showcase the evidence for creation and the accuracy of God's Word. We are working on dinosaur, Noah's Ark, and Ice Age exhibits, as well as a 3-D planetarium. The outside of the building is already paid for, but we still need to raise money for the interior exhibits, which will address common, as well as not-so-common, questions about the creation-evolution controversy. If you would like to see an alternative to the 'temples of evolution' found in most science museums, one that honors God and His Word, please prayerfully consider a donation to help us bring this project to completion."

— Jake Hebert, Ph.D.

BRIAN THOMAS, M.S.

Time and Creation

article highlights

- Like space, energy, and matter, time is a created thing.
- Time did not exist before "the beginning."
- People are created beings and exist in time, but God does not—He is eternal.

What Is Time?

Questions about time often arise in discussions of Genesis and Earth's age. Could billions of years have elapsed before the "in the beginning" of Genesis 1? When did time start? Science and Scripture suggest some answers.

As one of the seven fundamental quantities of physics, time is essential to our existence.[1] It sets "the stage on which reality plays out."[2] It permits possibilities to become real and allows causes to produce effects. Over time, we observe matter change state or form. People grow, learn, and get to know one another and God. Because of time, we humans get the privilege of experiencing the present, remembering the past, and hoping for the future.

We can define time as duration characterized by changes in what something is or has. For example, an ant can pick up a bit of leaf and thus change what it has. After it dies, its nature changes over time from that of an ant to that of essentially dirt.

Time and change go hand in hand. But God does not change. He already knows the future, including theoretical futures.[3] If He changed who He is, He would cease to be perfect and thus cease to be God. He cannot learn anything new because He already knows everything.

Time and God

Time could not exist without God, yet He does not need time. Humans require time to exist. My potential to be a different me becomes the actual me only through time. Over time, we change what we have, such as gaining knowledge or strength. And God can change what we are, like from a sinner to a saint.[4]

These descriptions help address the question of how time began. "For by Him all things were created that are in heaven and that are on earth, visible and invisible."[5] Time may not be visible, but its effects are. Time is tightly tied to changing states of visible and invisible entities. Without time for the ant to decay, its essence would not change. Without time for a girl to learn the gospel, she would not have the opportunity to repent of her sin and trust Christ. Thus, time, space, and matter either all exist together or none exist.

When Time Began

Genesis 1:1 says, "In the beginning God created the heavens and the earth." Clearly, no created entities existed before that moment. And without material or immaterial entities, how could anyone notice the passage of time? So, it looks like "the beginning" marked the first moment of time.

One could make a similar argument about space. Without space for material like clocks to inhabit, then no clocks could exist to mark the passage of time. And God did not create space ("the heavens") until Genesis 1:1.

Another argument suggests the same conclusion. One of God's first acts of creation was to invent a giant device to mark time—a spinning earth near a light source that delineated evening and morning. Hebrews 11:3 says, "The things which are seen were not made of things which are visible." Scripture doesn't record any things or events prior to the beginning, and time is defined by changes in the state of *things*. Apparently, prior to the creation week, there was only God, perfect in His timeless changelessness—just as He still is and will forever remain.[6] Thus, the Bible suggests there was no time before the beginning of creation.

God, Eternity, Genesis, and Me

I find it hard to comprehend God's eternal state. It helps me to note the difference between eternity and endless time. Endless time would involve the same kind of time we experience now, just elongated forever into the future. But God does not exist in a state of endless time. He exists in eternity, apart from any timeline. He can pop into the timeline of our reality anytime He wants. He left evidence of having done just that with His many miracles, including the miracle of creating time ("in the beginning"), space ("God made the heavens") and matter ("and the earth").

Because it records no time before the beginning's first moment, Scripture leaves no time for eons of evolution. Jesus appears to address this when He tells the Pharisees, "But from the beginning of the creation, God 'made them male and female.'"[7] He could just as easily have said, "But eons after the beginning of creation, God 'made them male and female.'"

Thank God for creating people, things, time, and space in the beginning. He even had His Son Jesus enter time with us and for us because He loves us so much! "But when the fullness of the time had come, God sent forth His Son, born of a woman, born under the law, to redeem those who were under the law, that we might receive the adoption as sons."[8]

So, can we avoid recent creation by fiddling with the meaning of time in Genesis 1? Bottom line, we would have a hard time trying to go against the scriptural trend that time began at the moment God first spoke light into being on Day 1 of the creation week.

References

1. The other six are length, mass, electrical current, thermodynamic temperature, amount of substance, and luminous intensity.
2. Geisler, N. L. 1999. God, Nature of. *Baker Encyclopedia of Christian Apologetics*. Grand Rapids, MI: Baker Books, 285.
3. For example, Jesus knew what would have happened if Sodom had seen the same miracles people from Capernaum saw. "And you, Capernaum, who are exalted to heaven, will be brought down to Hades; for if the mighty works which were done in you had been done in Sodom, it would have remained until this day" (Matthew 11:23).
4. "To the church of God which is at Corinth, to those who are sanctified in Christ Jesus, called to be saints, with all who in every place call on the name of Jesus Christ our Lord, both theirs and ours" (1 Corinthians 1:2).
5. Colossians 1:16.
6. By the way, God didn't create because He was lonely, since the three persons of the Trinity fellowshipped in joy before the beginning, even as they always will. See John 17.
7. Mark 10:6.
8. Galatians 4:4-5.

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

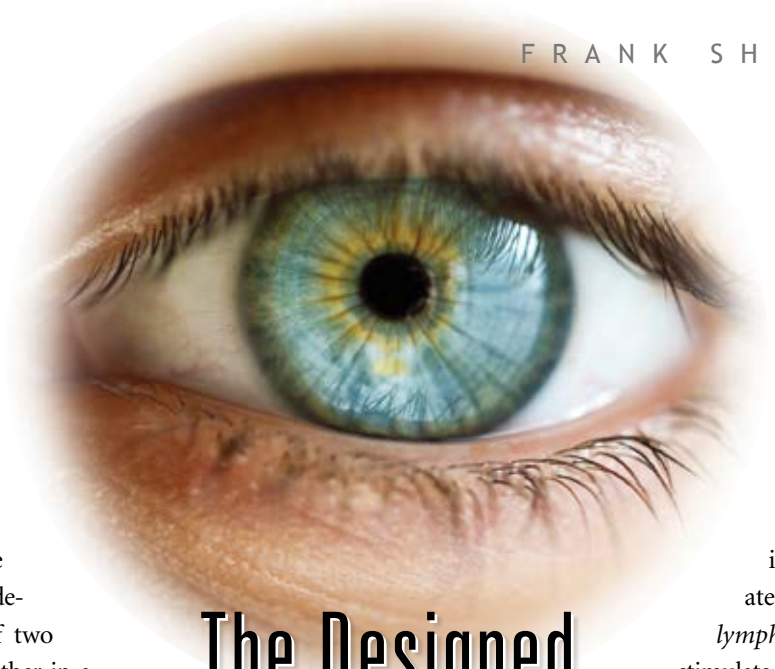
Did Angels Exist Before the Creation Week?

Some people imagine angels watching God create everything, starting on Day 1. In order for the angels to watch that moment, they would have had to exist beforehand. Either God made them before the beginning or they have always existed. They could not have eternal existence, for then they would not differ from God Himself, who is the only uncreated, eternal being. Since angels are created, finite beings like you and me, they can only exist in time. And the Bible nowhere says angels existed before Day 1.

Could angels have existed in a heavenly time that was ticking before earthly time began? I doubt it. If "the heavens" in Genesis 1:1 include God's dwelling place as well as the stars' realm (Genesis 1:15), then it appears angels would have had no place to exist before creation.

The Bible does not specify exactly when God made angels, but it gives clues that narrow the options. God asked Job, "Who laid its [Earth's] cornerstone, when the morning stars sang together, and all the sons of God shouted for joy?" (Job 38:6-7). The sons of God are angels. God must have made them during the creation week after He made the time that allowed them to change into a state of shouting for joy but before He made the earth over which they rejoiced.

FRANK SHERWIN, M.A.



The Designed Interface of the Eye's Microbiome

article highlights

- A microbiome consists of viruses, bacteria, fungi, and other microorganisms.
- Bacteria found in the conjunctiva of mice show that not only does the eye have its own microbiome, its resident microorganisms help protect it from infection.
- Our immune system was designed to interface with our microbiome, a mutual relationship that helps keep us healthy.

Researchers have discovered unique microbial communities on and in our skin, mouth, gut, and airways. This collection of viruses, bacteria, and fungi is called the *microbiome*. The human immune system's amazing regulation of our microbiome demonstrates a high level of design in which the systems of two independent entities work together in a seamless operation. For example, not only do bacteria in the gut modify the human body's immune response, but researchers found a gene that functions to maintain the balance of immunological elements regulating specific microbes.[1] One may reasonably conclude that our bodies' systems and their resident microorganisms were, and are, designed to work together.

Microbiome researchers recently studied the conjunctiva of mice and made a discovery that astounded more than a few microbiologists. This mucus membrane covering the outside of the eyeball and lining the inside of the eyelids has long been thought to be sterile, but the scientists found it actually harbors bacteria. Why is this surprising? Because the tears that wash across the eyeball contain an enzyme called *lysozyme*, an antibacterial (or bacteriolytic) agent found in human and animal secretions. It's designed to lethally split (hydrolyze) the glycosidic bond in the cell walls of bacteria as they float into our eye or are introduced by our fingers. Somehow, certain bacteria are not affected by lysozyme's efficient bacteria-killing properties.

Beneficial microorganisms found in the gastrointestinal tract compete with disease-causing (pathogenic) microorganisms. In biology this is called the principle of competitive exclusion. Could something like this also be occurring on our eyes? A research study showed the bacteria living there affect the microbe interface system (immune system) to repel or discourage pathogens.[2] As National Eye Institute (NEI) researcher Anthony St. Leger, the study's lead author, notes, "It's well known that there are good bacteria in the gut that modulate the immune response. Now we show that this relationship exists in the eye."[3]

The NEI study found a species of bacteria called *Corynebacterium mastitidis* (*C. mast*) in the mice conjunctiva. Was this bacterium a resident or was it randomly introduced into the eye? Researchers didn't know. They combined *C. mast* with the conjunctiva's immune cells and remarkably found that a signaling protein (cytokine) called an *interleukin* was produced. This important substance is generated by white blood cells called *lymphocytes* and *macrophages* that stimulate the production and differentiation of other white cells. These cells then discharge antimicrobial proteins into the tears. Further observations "support the notion that *C. mast* is a resident commensal, not a bacterium that is continually reintroduced to the eye from the skin or the environment."[3] An NEI news release on the study stated, "The researchers are currently investigating the unique features that can make *C. mast* resistant to the immune response that it itself provokes and allow it to persist in the eye….[Scientists] still don't know what enables *C. mast* to successfully establish itself in the eye, whereas other similar bacteria fail to colonize."[3]

To conclude, there is a resident microbiome in our eyes with bacteria such as *C. mast* that appear to stimulate a beneficial immune response. Creation scientists see this unique relationship as yet another example of designed interfacing, with our created immune system regulating the microbiome to the benefit of both.

References

1. Ryu, J.-H. et al. 2008. Innate Immune Homeostasis by the Homeobox Gene *Caudal* and Commensal-Gut Mutualism in *Drosophila*. *Science*. 319 (5864): 777-782.
2. St. Leger, A. J. et al. 2017. An Ocular Commensal Protects against Corneal Infection by Driving an Interleukin-17 Response from Mucosal γδ T Cells. *Immunity*. 47 (1): 148-158.e5.
3. Eye microbiome trains immune cells to fend off pathogens. National Eye Institute. Posted on nih.gov July 11, 2017, accessed March 2, 2018.

Mr. Sherwin is Research Associate, Senior Lecturer, and Science Writer at the Institute for Creation Research and earned his master's in zoology from the University of Northern Colorado.

Designed Mechanisms Best Explain Convergent Traits

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

article highlights

- Innate systems with elements corresponding to human-engineered tracking systems enable creatures to tightly track environmental changes.
- Continuous environmental tracking can explain the independent, rapid, and repeatable expression of similar traits by diverse creatures.
- The data that creatures' sensors collect about external challenges are used to modulate genetic expression.
- Modified genetic expression produces targeted solutions to specific environmental challenges, solutions that may independently lead different creatures to the same phenotypic destination.

Diverse creatures have repeatedly been observed rapidly and independently converging on the same traits needed to solve similar environmental challenges. How extensive is this phenomenon? Harvard biologist Jonathan Losos said in 2017, "In recent years, scientists have identified convergence in almost any type of trait you might imagine."[1] Such widespread repeatable—indeed, predictable—expression of similar traits should make researchers question whether this outcome is due to chance.

The phenomenon suggests a testable hypothesis that these creatures share common programming that powers the production of specific traits suitable for certain conditions. The Institute for Creation Research is developing a model called *continuous environmental tracking* (CET) that can explain independent, rapid, and repeatable expression of similar traits. CET is a design-based, organism-focused framework. It theorizes that organisms use highly regulated innate mechanisms to continuously track environmental changes over time. Some mechanisms feature elements that correspond to systems humans have engineered to track moving targets, including sensors to detect changing conditions, if-then logical algorithms, and output responses in the form of suitably modified traits.[2]

Targeted Solutions for Specific Environmental Challenges

From a design standpoint, organisms must be self-adjustable to thrive in dynamic environments. We expect offspring to differ from their parents, but do we appreciate how dynamic organisms are within their lifetimes as they relate very closely with their environments? Barring abrupt, wholesale destruction of large populations or their habitats, individual creatures exhibit remarkable resilience to environmental changes by expressing highly suitable traits or ingeniously modified behaviors.

Creatures' very tight condition-response specificity seems to operate with an intended purpose. How do evolutionists explain this? Since they prohibit intelligence-based causes, their literature regularly invokes mystical events acting like substitute intelligent agents as causes for outcomes that would normally be attributed to the agency of an intelligent designer. For instance, some claim that "the environment can instruct which phenotype can be produced from the genetic repertoire in the nucleus" because "the environment is giving instructive information as well as selective pressures."[3] Since scientific tests can neither quantify a selective pressure nor detect environments sending instructions or actually selecting one organism over another, the explanatory insertions that permeate evolutionary literature would be defined as mystical. Mystical acts depicting environments that exercise agency are essential to evolutionary theory, which holds that active environments mold organisms over time by externally imposing new physical forms on them through such agencies as selective pressures.[4]

But if organisms are products of intelligent engineering, then

we would expect to see innate systems self-modifying an organism's traits as a targeted response to detected conditions—and this is what we do see.[5] Engineering principles can explain a creature's resilience since it is both robust in maintaining its general characteristics and yet plastic in "flexing" phenotypically when facing environmental challenges.[6]

Phenotypic plasticity refers to organisms' ability to express combinations of traits in response to varying exposures (temperature, moisture, chemicals, population size, etc.). How an arctic fox's fur changes in the fall from gray-brown to white illustrates seasonal phenotypic plasticity. Two scientists highlighted phenotypic plasticity's significance to adaptation and diversification by saying that the "environmental effects on trait morphology can be substantial, outweighing both genetic effects and reproductive advantages."[7] But environments do not directly effect trait morphology through mystical means like "sending instructions." Searching through scientific studies and looking for design elements reveal that organisms self-adjust through innate mechanisms that correspond to human-engineered systems. In the organisms' internal systems, sensors detect environmental changes and send data to if-then logic centers that regulate gene expression, resulting in targeted responses. A few examples will demonstrate the link between the detection of conditions and the resulting regulated gene expression.

Sensing Temperature and Converging on the Same Sex

For various reptiles including some lizards, snakes, turtles, and alligators, a single clutch of eggs may all converge on the same sex. The offspring's sex is determined by a developmental program using data the growing embryos collect about incubating temperature during a temperature-sensitive period. All females develop at one temperature, all males at another, and a ratio of both sexes at temperatures in between. Ratios are further modulated by added data on sand moisture content.[8] These data are used to regulate different ratios of gene products for sex-affecting hormones. The process is triggered by temperature sensors discovered in 2015 through "the first experimental demonstration of a link between a well-described thermo-sensory mechanism, TRPV4 channel, and its potential role in regulation of TSD [temperature-dependent sex determination] in vertebrates."[9]

Biomechanical-Force Sensors Also Trigger Gene Expression

Research by geneticist Craig Albertson dealt with the link between the mechanical stresses a body detects and how genetic products are regulated to tailor adaptational responses such as bone deposition. In a study on cichlid fish larvae, he identified how vigorous mouth-gaping behavior during early development influenced the shape of the adult face and skull. Jaw movement affected "the mechanical environment in which bone develops," and "this mechanical-load-induced shift in skeletal development is associated with differences in *ptch1* expression, a gene previously implicated in mediating between-species differences in skeletal shape."[10]

The University of Massachusetts Amherst interviewed Albertson about the significance of his research. He explained, "We now need to understand how bone cells sense and respond to their mechanical environment. What are the molecules that enable this mechano-sensing?"[11] Noting that an organism's ability to detect changing conditions during development can't be minimized, Albertson said:

> For over a hundred years, we've been taught that the ability of a system to evolve depends largely on the amount of genetic variation that exists for a trait. What is ignored, or not noted for most traits, is that less than 50 percent of genetic variation can typically be accounted for by genetics.[11]

He added that by "manipulating the genetics of craniofacial bone development we can account for up to 20 percent of the variability, so it's modest." Yet, facial shape is affected almost as much by manipulating the mouth-gaping behavior to change the stresses cells detect. Hypothesizing about the function of this biomechanical-gene regulation linkage, UMass Amherst reported, "The idea is that when an animal population is exposed to a new environment, certain molecules will enable them to respond by conforming their bodies to meet new challenges."[11]

Detecting Cave Conditions Unmasks Latent Traits

How do the sighted river fish *Astyanax mexicanas* respond when they're suddenly trapped in a cave environment? The answers illuminate the timing and mechanisms that produce blind cavefish. Caves have other distinguishing conditions besides darkness. Cave water's ability to conduct electricity may have up to a fivefold decrease compared to surface streams. Research led by Nicolas Rohner found that fish embryos can detect levels of water conductivity, data that are then used by a multistep mechanism to modulate a stress-related protein called heat shock protein 90 (HSP90).[12]

HSP90 buffers latent, adaptable genetic variation (if present in the genome) and "unmasks" it in response to different exposures. Regulating HSP90 activity enables expression of innate variability in eye size ranging from normal to slightly decreased to absent within a single generation. River fish placed in lower conductivities during larval development displayed a 50% increase in eye and orbit size variation. Additional tests showed that *de novo* mutations did not cause these genetic variations for small eye size, and after being "unmasked" they seemed to remain expressed in offspring.

Epigenetic Mechanisms Integrate Sensor Data to DNA Regulation

Scientists working with laboratory rats observed contrasting responses to stressful conditions that varied from normal to hyperagitated.[13] Yet, the rats all descended from the same inbred genome.

This pointed to an epigenetic cause. Epigenetics refers to regulatory modifications of genetically unaltered chromosomes. This allows the selective activation of genes and thus rapid phenotypic flexing according to the demands facing the organism.[6]

The agitated rat mystery traced back to the first developmental week after birth. Though often overlooked, epigenetic responses start when creatures detect a specified condition (i.e., a stimulus). Normal rats had received ample maternal attention and grooming, while anxious rats had been deprived. When rat pups detect tactile stimulation, a complex mechanism uses stimulus data to regulate certain genes that produce stress hormone receptors for the hippocampus, a brain structure known to modulate stress responses. Normal rats had significantly more receptors.

Anxious female rats tend not to groom their pups, and thus the behavior extends across generations. In a Canadian study on human infants, researchers stated:

> We report a particularly intriguing association between infant distress levels and epigenetic age deviation for those infants who experienced below average levels of contact…[and] we found initial support for the lasting biological embedding of postnatal contact at the level of DNAm. These results highlight the biological relevance of the experience of close and comforting contact critical to the formation of social bonds.[14]

Linking Life's Experiences to Changes in Gene Expression

Geneticist James Shapiro's extensive literature reviews show that at least two-thirds of our genomes are estimated to be composed of dispersed *mobile* DNA. This "transposable" DNA is key to linking what he calls "life history events" to highly regulated rewiring of genomic networks as a creature's response to changing conditions. He labels the entire process "natural genetic engineering."[15]

Mobile DNA inserts in locations that do not appear to be random. Instead, it "inserts preferentially" or "show[s] targeting (called 'P element homing')." Rewiring can result in adaptive responses for such conditions as salt and drought tolerance in bentgrass, immunity against fungus in rice, or aphid resistance in *Arabidopsis*. Most acquired stress resistance in plants displays transgenerational inheritance. Shapiro has hypothesized that "the preceding observations lead to the plausible hypothesis that epigenetic regulation serves as a key interface between organismal life history and the agents that restructure genomic DNA."[15] However, he says:

> While the evidence is increasingly abundant for effects of different life history events on epigenetic regulation in general, and on genome homeostasis in particular, it is far from clear how those effects occur. We know very little about the connections between cell sensors and epigenetic (re)formatting complexes.[15]

Conclusion

Possibly the reason why "we know very little" about cell sensors and epigenetic or other mechanisms is that researchers are not looking for them. Evolutionists who uncover adaptive traits that solve environmental challenges often simply invoke "selective pressure" as the cause. Others assert that the environment "gives instructions" to organisms. Mystical explanations like these derail evolutionary biologists' understanding of the basic mechanistic elements that self-adjusting creatures need to relate to their environment—elements that the CET model predicts exist and, when searched for, are found.

Standard selectionism is gene-centric, holding that speciation happens when genetic variability is parsed out into populations founded by "winners" emerging from nature's constant struggle to survive. Yet, these studies show a much-diminished role of raw genetic variability. Instead, a creature's sensors gather data about external challenges. The data are then used to modulate genes to produce targeted solutions that enable the creature to continuously track changing environments. Even the above abbreviated description of these innate mechanisms reveals the far-surpassing engineering genius of the Lord Jesus Christ.

References

1. Losos, J. B. 2017. *Improbable Destinies: Fate, Chance, and the Future of Evolution.* New York: Riverhead Books, 41.
2. Guliuzza, R. J. 2017. Engineered Adaptability: Engineering Causality Is the Answer to Darwinian Externalism. *Acts & Facts.* 46 (10): 17-19.
3. Gilbert, S. F. and D. Epel. 2009. *Ecological Developmental Biology: Integrating Epigenetics, Medicine, and Evolution.* Sunderland, MA: Sinauer Associates, 370 and 407.
4. Guliuzza, R. J. 2017. Engineered Adaptability: Adaptability via Nature or Design? What Evolutionists Say. *Acts & Facts.* 46 (9): 17-19.
5. Guliuzza, R. J. 2018. Engineered Adaptability: Active Environmental Tracking Explains Similar Features. *Acts & Facts.* 47 (4): 17-19.
6. Guliuzza, R. J. 2018. Engineered Adaptability: Epigenetics—Engineered Phenotypic "Flexing." *Acts & Facts.* 47 (1): 17-19.
7. West, P. M. and C. Packer. 2002. Sexual Selection, Temperature, and the Lion's Mane. *Science.* 297 (5585): 1339.
8. Sifuentes-Romero, I. et al. 2018. Hydric environmental effects on turtle development and sex ratio. *Zoology.* 126: 89-97.
9. Yatsu, R. et al. 2015. TRPV4 associates environmental temperature and sex determination in the American alligator. *Science Reports.* 5: 18581.
10. Hu, Y. and R. C. Albertson. 2017. Baby fish working out: an epigenetic source of adaptive variation in the cichlid jaw. *Proceedings of the Royal Society B.* 284 (1860): 20171018.
11. Baby Fish Exercising, a Surprising Source of Adaptive Variation in Fish Jaws. University of Massachusetts Amherst news release. Posted on umass.edu August 1, 2017, accessed August 17, 2017.
12. Rohner, N. et al. 2013. Cryptic Variation in Morphological Evolution: HSP90 as a Capacitor for Loss of Eyes in Cavefish. *Science.* 342 (6164): 1372-1375.
13. Helstrom, I. C. et al. 2012. Maternal licking regulates hippocampal glucocorticoid receptor transcription through a thyroid hormone–serotonin–NGFI-A signaling cascade. *Philosophical Transactions of the Royal Society B.* 367 (1601): 2495-2510.
14. Moore, S. R. et al. 2017. Epigenetic correlates of neonatal contact in humans. *Development and Psychopathology.* 29 (5): 1517-1538.
15. Shapiro, J. A. 2014. Epigenetic control of mobile DNA as an interface between experience and genome change. *Frontiers in Genetics.* 5 (87): 1-16.

Dr. Randy 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.

JEFFREY P. TOMKINS, PH.D.

Q: ARE EVOLUTION AND ADAPTATION THE SAME?

A: Due to the bombardment of evolutionary propaganda, most people think the terms *evolution* and *adaptation* basically represent the same thing. But nothing could be further from the truth. When one has a proper understanding of how creatures adapt and the incredible complexity of the mechanisms that enable them to do so, logic points to an all-wise Creator as adaptability's cause.[1,2] The scientific reality of the engineered complexity of adaptation is actually contradictory to the man-made myth of step-by-step gradual evolution over time.

Adaptability is a fundamental feature of all living things on Earth. The problem is that evolutionists find it difficult to explain how intricate adaptive mechanisms could have emerged. A plant or animal cannot adapt unless it is already *adaptable*. As the saying goes, in their quest to explain the survival of the fittest, evolutionists have no viable explanation for the *arrival* of the fittest. Living organisms appear to be innately adaptable, thus the complexity and importance of adaptability are actually a key argument in debunking evolution.

Evolutionists believe adaptable traits arose through the progressive accumulation of random genetic mutations that somehow provided an advantage to living things facing specific environmental challenges. But not only are nearly all mutations either harmful or at best neutral, it's impossible to achieve a functioning system of many orchestrated components one step at a time.

article highlights

- Evolutionists claim evolution and adaptation are equivalent, but they are essentially contradictory concepts.
- Creatures have numerous built-in mechanisms that enable them to adapt to a variety of environmental challenges.
- These remarkable adaptive mechanisms need all their pieces in place for them to work.
- God made creatures already fully adaptable—random processes can't create adaptability.

All-or-nothing systems cannot evolve bit by bit. For virtually any complex system to work, every component has to be in place all at once!

Mechanisms of adaptation are made up of complex integrated components, including environmental sensors, signaling pathways, feedback and feed-forward loops, and information control systems in the creature's DNA. By applying basic engineering principles to these living systems, the conclusion is obvious that they were intelligently designed by God.[3]

Another feature of adaptability that often gets confused with evolution is the genetic variability built into different kinds of creatures.[4] For example, because of human breeding efforts based on the created genetic variability built into the canine kind, various dog breeds have been produced that look radically different from each other. But the fact remains they are all dogs and haven't been changed into a fundamentally different creature like a cat. Even the Galapagos finches that Charles Darwin and others have studied could interbreed with each other, and they produced nothing but finches. Evolutionists like to extrapolate the observed variability within kinds as evidence for single cells evolving into people, but built-in mechanisms of genetic variability are an important part of adaptable design, too.

Evolution and adaptation are not the same. The complex internal mechanisms of adaptation combined with built-in genetic variability allow creatures to fill niches, diversify, and make homes across many different environments. The facts of science clearly point to the wonderful engineering of an all-powerful Creator, not the failed myth that nature somehow created itself through chance random processes.

References

1. Guliuzza, R. J. 2017. Engineered Adaptability: Engineering Principles Point to God's Workmanship. *Acts & Facts.* 46 (6): 16-19.
2. Guliuzza, R. J. 2017. Engineered Adaptability: Arriving at a Design-Based Framework for Adaptability. *Acts & Facts.* 46 (8): 17-19.
3. Guliuzza, R. J. 2017. Engineered Adaptability: Engineering Principles Should Guide Biological Research. *Acts & Facts.* 46 (7): 17-19.
4. Tomkins, J. P. 2012. Mechanisms of Adaptation in Biology: Genetic Diversity. *Acts & Facts.* 41 (5): 8.

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

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

Viking Bones Contradict Carbon-14 Assumptions

Radiocarbon dating is considered one of science's tried-and-true methodologies. But could there be a forensic flaw in measuring carbon-14 dates using conventional methodology? Could dates assigned by that method be vulnerable to faulty assumptions that render them invalid?

Indeed they can. The age assignment for certain Viking bones caused a decades-long controversy until the carbon-14 methodology used to date them was recently exposed for its flawed assumptions.[1] This case demonstrates that one-size-fits-all radiocarbon dating doesn't work.

article highlights

- Radiocarbon dating can be accurate in assigning ages to human or animal remains, but the method can fail if carbon-14 intake assumptions don't match their actual diets.
- In the case of a mass grave of fish-eating Vikings, the radiocarbon "dating" didn't line up with the historical eyewitness accounts.
- Genesis 1 presents God's reliable eyewitness account of our origins.

A mass burial of 250 to 300 skeletons was discovered in the Derbyshire village of Repton, England, in the 1980s. It seemed likely they were the remains of the Scandinavian Vikings of the Great Heathen Army who wintered in Repton over a millennium ago during 873–874. Eyewitness accounts indisputably reported the army's historical presence during the latter 800s, so many modern historians concluded that these mass-grave skeletons were those very Vikings.[2] However, a team of empirical science investigators, using routine carbon-14 radiometric dating methodology, rejected that historical timeframe, arguing instead for dating the skeletons a century or so older based upon residual carbon-14 found inside the bones.[1]

Why would radiocarbon calculations indicate the buried warriors died during the 600s or 700s, a century or more *before* Derbyshire was overwhelmed by hordes of Vikings? Likewise, if radiocarbon determinations are so reliable, why is no Viking army reported as occupying Derbyshire during the 600s or 700s? This loud silence is what forensic experts call the "evidence of nothing" problem.[3]

Carbon-14 dating methods use assumptions.[1,4] Could it be that one of the usual assumptions is *invalid* for measuring the time-of-death data for the Repton skeletons?

The normal radiometric dating scenario presumes that human skeletons contain organic material with steadily decaying radiocarbon that is traceable to plant photosynthesis, which incorporates atmospheric CO_2 into plant carbohydrates. As herbivores eat plants, radiocarbon within photosynthesis-fixed carbohydrates metabolically incorporates into the animal's flesh.[4] By eating plants, humans acquire carbon-14 directly. By consuming plant-eating animals (cattle, sheep, goats, swine, etc.), humans ingest carbon-14 indirectly. A major assumption affecting the mathematics of radiocarbon dating is that human skeletons contain residual carbon-14 acquired predominantly from terrestrial (i.e., land-food-based) diets.[1,4,5]

However, a diet incorporating lots of finfish (cod, salmon, trout, herring, etc.) and/or shellfish (shrimp or crab) would nix that vital assumption.[1,5] The Vikings were known for a seafood diet—specifically fish. And fish contain much less carbon-14 than land-based foods like grains, vegetables, fruits, dairy products, or livestock meats.[1,2,5]

Therefore, unless dietary differences are adjusted for, carbon-dated skeletons of fish-eating Vikings appear to be about a hundred years or more older than they really are. They seem to be "missing" so much of the expected carbon-14 that they are interpreted as having died centuries earlier than they actually did.[1,4,5]

The take-away lesson is that unique historical events such as battles, deaths, traffic accidents, or the Genesis Flood require reliable eyewitness reporting, not just empirical observations in the present such as fingerprints, rubber skid marks, or blood spatters.[3,6] That's why we need God's eyewitness Genesis report to understand our origins.

References

1. Jarman, C. L. et al. 2018. The Viking Great Army in England: New dates from the Repton charnel. *Antiquity.* 92 (361): 183-199.
2. Haywood, J. 1995. *The Penguin Historical Atlas of the Vikings.* London: Penguin Books, 12-13, 62-63.
3. Job 38:4. Johnson, J. J. S. 2008. The Evidence of Nothing. *Acts & Facts.* 37 (4): 4-5. See also Johnson, J. J. S. 2012. Genesis Critics Flunk Forensic Science 101. *Acts & Facts.* 41 (3): 8-9.
4. Morris, J. D. 2007. *The Geology Book.* Green Forest, AR: Master Books, 50.
5. Arneborg, J. et al. 1999. Change of Diet of the Greenland Vikings Determined from Stable Carbon Isotope Analysis and ^{14}C Dating of Their Bones. *Radiocarbon.* 41 (2): 157-168.
6. Johnson, J. J. S. and J. Tomkins. Blood Crying from the Ground, a Forensic Science Perspective, Illustrated by the Gruesome Killing of America's Most Hated Woman. Presented at the Creation Research Society Conference, Dallas, Texas, July 31, 2015. See also Johnson, J. J. S. 2016. There's Nothing Like an Eyewitness. *Acts & Facts.* 45 (12): 20.

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

HENRY M. MORRIS IV

Don't Miss the Joy

I often marvel at God's hand on ICR's ministry. We have experienced times of plenty and seasons of leanness. Through it all, ICR has remained sensitive to the Lord's leading by pursuing new opportunities when appropriate while continuing to distribute free publications like *Acts & Facts* and *Days of Praise*. God has been faithful to supply our needs through His people, and those who financially partner with us will one day share in the eternal rewards of our work together (1 Corinthians 3:7-8).

With God's provision in mind, ICR has always had a strong commitment to use our resources wisely. We don't go into debt or spend what we don't have. Moreover, we have generally resisted the urge to develop larger, more expensive programs if new budgetary pressures might shift our focus away from our core ministry. Of course, larger gifts can make larger programs possible and are always welcome, but we know that such gifts are not possible for most and could even be unbiblical if given in the wrong spirit. Consider what Christ had to say about this in Luke 21:1-4:

> And He looked up and saw the rich putting their gifts into the treasury, and He saw also a certain poor widow putting in two mites. So He said, "Truly I say to you that this poor widow has put in more than all; for all these out of their abundance have put in offerings for God, but she out of her poverty put in all the livelihood that she had."

article highlights

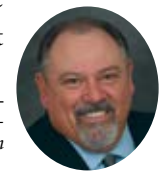
- ICR has always relied on God for direction and provision.
- We have a strong commitment not to go into debt or spend what we don't have.
- As we finish building the ICR Discovery Center, small gifts can and do add up.
- If you haven't yet partnered with us, join the thousands of supporters who have—you make a difference!

The large gifts didn't impress Jesus because the givers gave "out of their abundance" and still had plenty left over. But the widow's two mites (worth about one fourth of a penny) so impressed Christ that He used it to illustrate the point that God measures a gift not by its size but by the motive with which it is given and the amount left un-given. In God's eyes, the widow's small gift was more valuable than all the other gifts combined because "she out of her poverty put in all the livelihood that she had." This stands as one of the greatest examples of sacrificial giving in all of Scripture.

Perhaps some have been reluctant to give "too small" a gift, believing it can't do much for the Lord's work. Nothing could be further from the truth! Perception can be a funny thing, particularly now as ICR seeks help raising the final $8 million to complete the ICR Discovery Center for Science and Earth History. I was recently reminded of this exact point by one of our supporters:

> I did a little math this a.m., and if each one of [your readers] gave $16 the $8 million would be available. Many people believe a little wouldn't help—they want to do a lot….[But] while God appreciates the $1,000 gifts, what He really wants is the continual, persistent, faith-devoted $0.25 a day. We often miss the joy of the $0.25 by wishing we had the $1,000 to give. I only mention it because…I wondered how much it would take to raise the $8 million if we all pitched in. Perhaps others have wondered too. — S. B.

I couldn't have said it better. A sizeable majority of our readers have not yet partnered with us. Don't "miss the joy" of giving to a worthy Christ-honoring cause like the ICR Discovery Center because you don't believe your gift is large enough. Your help does make a difference, and many of those "mites" add up and can be used by God to do great things for His work!



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

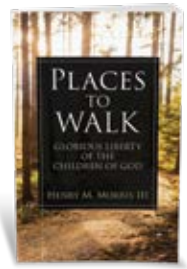
Everyone should read [Dr. Vernon Cupps'] articles in *Acts & Facts*. **Fantastic!**

— M. R.

A **must-read** for those who love science and the Bible!

— B. R.

I just finished reading *Places to Walk: Glorious Liberty of the Children of God* by Henry M. Morris III, and I found it very educational, comprehensive in its particular presentation, and thoroughly researched with abundant Scripture references on all points. **This indeed is an information-packed little book of 41 entries that engage the reader to chew on the truths jammed inside.**



— R. P.

Thank you, ICR, for all the amazing resources you give. **I recently had a ten-page paper due for a theology class that I'm taking. In the entire library system for my area, there was not one book that would be helpful in proving the creationist view.** You guys were a grade-saver.

— D. H.

Resourceful and diligent research! **ICR stands at the forefront of the scientific debate, thus equipping me and many more with information and knowledge (science), equipping the believer and convicting the hearts of skeptics.** I feel like I have big brothers to rely on when it comes to creation research and gospel proclamation. Please accept my gratitude for your assistance.

— N. G.

Great job on representing the **Christian worldview combined with the love of Christ** in your article on Dr. [Stephen] Hawking. Thank you!

— W. E. W.

ICR, you all have helped me greatly as well through five years of college, especially while pursuing a degree in wildlife and fisheries science. **As a result of ICR's ministry I have become more grounded in faith toward the Genesis account and God's Word in general. Thank you!** I can testify that the evidence alone in how organisms can adapt and change over time within their own kind could never lead a person to believe that all life today arrived from a single-celled organism. It's all about the professor's interpretation within the traditional paradigm as it is taught to the class.

— D. K.

I just wanted to say **thank you for the monthly selections of good and reliable articles that show that God is Creator and the biblical account of creation is true and accurate.** I've received the magazine for over 42 years—even when it was a small leaflet I looked forward to the monthly information and found it to be helpful and uplifting. You also offer many reminders that false theories abound in this compromising and false age.

— R. H.

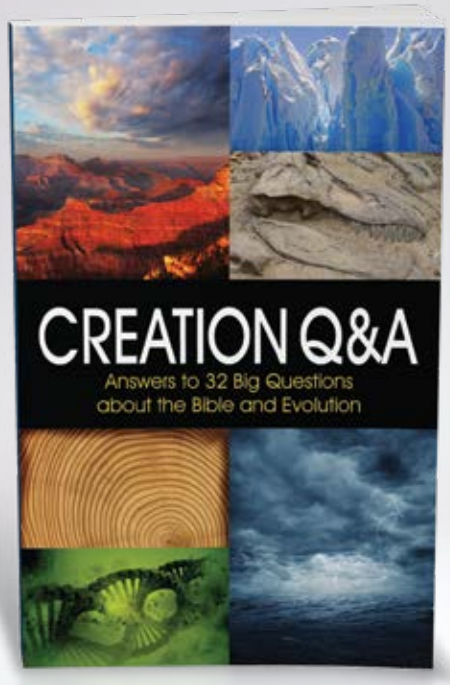
Have a comment? Email us at Editor@ICR.org or write to Editor, P. O. Box 59029, Dallas, Texas 75229. Note: Unfortunately, ICR is not able to respond to all correspondence.

NEW!

CREATION Q&A

Answers to 32 Big Questions about the Bible and Evolution

INSTITUTE FOR CREATION RESEARCH
P. O. Box 59029, Dallas, TX 75229
ICR.org



$2.99
BCQAA

$10.00
Buy five *Creation Q&A* books for $10.00 and give four away to your family and friends!

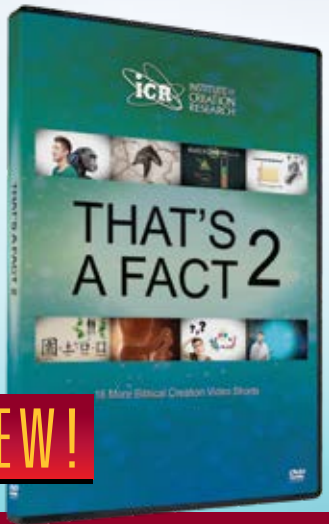
What is the debate between creation and evolution, and does it matter?

If you're new to these things—or know someone who is—then this booklet is for you. Think evolution is a fact? After just a few pages, you may start thinking differently. Discover a world of top-notch research that confirms what the Bible says about our origins. For questions about genetics, radiometric dating, geology, dinosaurs, the Big Bang, Noah's Ark, or even tree rings—we've got answers.

$9.99
(if purchased separately)
DTAF1

$13.99
~~$19.98~~
PTAF
(if purchased as a two-DVD pack)

NEW!



$9.99
(if purchased separately)
DTAF2

Buy Both *That's a Fact* DVDs and Save 30%!

That's a Fact 2: 16 more *That's a Fact* video shorts in one educational DVD

Buy both DVDs and get 32 video shorts!

That's a Fact 2: Each video showcases one powerful truth about the Bible, creation, and science—in two minutes or less! This collection of 16 videos covers a variety of topics in a fun, visual, and engaging format.

Call **800.628.7640** or visit **ICR.org/store**

Please add shipping and handling to all orders. Offer good through May 31, 2018, while quantities last.