INSTITUTE FOR CREATION RESEARCH

www.icr.org

MAY 2015

# Hungry Hearts in the Middle East

page 5

Snake Venom, Genetic Entropy, and Adam's Curse page 14

**Do Stars Still Form Today?** page 15

Raymond Damadian, Inventor of Magnetic Resonance Imaging page 18

A Secret Weapon for Apologetics page 20

1.2

# EDITION UNDERSTORATION UNDERSTORATION UNDERSTORATION UNDERSTANDAUMAN UNDERSTAND UNDERSTA

This new edition of *Unlocking the Mysteries of Genesis* contains **English** closed captions and subtitles in **English**, **Spanish**, **Chinese**, and **Korean!** 

### Groundbreaking 12-DVD series at this special price!

Plus shipping and handling. Includes one viewer guide—additional viewer guides sold separately.

Español

Unlocking the Mysteries of Genesis supports a biblical worldview with scientific evidence and offers defensible answers to the most controversial questions of faith and science.

Packed with cutting-edge research and dynamic visuals, each 22-minute episode takes viewers on a journey through the most fascinating topics in creation science, ranging from the origins of life to evolution to the age of the universe and Noah's Flood.

This is a fantastic resource to use with small groups, Bible studies, or as a church-wide series. Get equipped with powerful answers to defend your faith!

Please add shipping and handling to all orders. To order, visit **ICR.org/store** or call **800.628.7640**.



Unlocking the Mysteries of Genesis Student Guide Get the companion Student Guide for only **\$14.99!** BUTMGSG Buy two for **\$22.00!** (regular price \$29.98)

SBUTMGSG

Filled with dozens of educational activities and cool facts about creation, our new Student Guide equips viewers with even more knowledge about

every episode of *Unlocking the Mysteries of Genesis*. Designed to provide exactly what you need to make creation science a part of your student's curriculum!



VOLUME 44 NUMBER 5 MAY 2015

#### Published by INSTITUTE FOR CREATION RESEARCH

P. O. Box 59029 Dallas, TX 75229 214.615.8300 www.icr.org

EXECUTIVE EDITOR

Jayme Durant

### SENIOR EDITOR Beth Mull

### EDITORS

Michael Stamp Truett Billups Christy Hardy

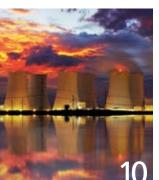
**DESIGNER** Dennis Davidson

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

Copyright © 2015 Institute for Creation Research













### **FEATURE**

5 Hungry Hearts in the Middle East

### IMPACT

**10** Heavy Metal Clocks, U-Pb and Th-Pb Dating Models: Radioactive Dating, Part 7 VERNON R. CUPPS, PH.D.

### RESEARCH

**12** Settling the Dinosaur Weight Debate Tim Clarey, Ph.d., and Jeffrey P. Tomkins, Ph.d.

### **BACK TO GENESIS**

- **13** How Could Eve Know? JASON LISLE, PH.D.
- **14** Snake Venom, Genetic Entropy, and Adam's Curse JEFFREY P. TOMKINS, PH.D.

**CREATION Q & A** 

- **15 Do Stars Still Form Today?** BRIAN THOMAS, M.S.
- **16** Living Light Detectors Declare Design RANDY J. GULIUZZA, P.E., M.D.
- **18** Raymond Damadian, Inventor of the MRI JERRY BERGMAN, PH.D.

### **APOLOGETICS**

**20** A Secret Weapon for Apologetics JAMES J. S. JOHNSON, J.D., TH.D.

### STEWARDSHIP

**21** ICR's Tychicus

HENRY M. MORRIS IV



### Just a Touch

hen the ICR team—Dr. Henry Morris III, Jan Morris, and Michael Hansen—arrived in Amman, Jordan, one of their first stops was a church that provides services to refugees from neighboring countries. While most of the refugees are not Christians, the pastor opens the doors and welcomes them. Pastor George has a heart for helping those who are suffering. The refugees have endured war, poverty, hunger, physical abuse, and displacement from their homelands, and he uses God's provisions to meet their needs.

Officials question Pastor George a few times a year, but they allow him to continue the ministry because he is meeting practical needs—providing blankets, food, and basic necessities. In the name of Christ, he shows kindness to weary, suffering people.

During ICR's visit to Pastor George's church, Mrs. Morris noticed that one young man who was confined to a wheelchair reached out to touch them every time they passed. As Mrs. Morris shared this story with me, I thought of the woman in the Bible who just wanted to touch the hem of Jesus' robe (Matthew 9:20-22). *Somehow, just a touch would make life better*. She was trusting in the righteousness of Jesus to save her.

Dr. Morris went to Jordan to answer the call to train pastors, students, and anyone who wanted to learn about God's Word. He discovered hungry hearts in a land we often think of as being violent and darkened—"veiled" to the truth. And yet, he encountered teachers and students alike who expressed a constant yearning for more information. They wanted to know what the Bible said not only about creation but also about life. He said the questions were endless, the days were long, and he was constantly "on call" to teach the Word of God.

In our feature article this month, "Hungry Hearts in the Middle East," you'll find more details of ICR's trip to Jordan how Dr. Morris taught, answered questions, and encountered many who were eager to learn more about the Bible (pages 5-8). Throughout their stay, the Morrises and Michael received countless requests for more ICR resources and information.

The needs in Jordan went beyond the classrooms, church sanctuaries, and seminary training center. The needs extended far beyond the planned sessions—they weren't contained to classrooms or even wheelchairs. On buses and at dining room tables, people wanted to know more. They wanted answers, information, and help. Ultimately, they wanted to know more about God. They ached for the truth. They needed a touch from Jesus.

Jayme Durant

Jayme Durant Executive Editor



# Hungry Hearts in the Middle East

Meanwhile praying also for us, that God would open to us a door for the word, to speak the mystery of Christ. (COLOSSIANS 4:3)

### **Open Doors**

Sometimes the Lord opens unexpected doors. Institute for Creation Research events are usually held in the United States and Canada, but it appears God may be leading us beyond these borders. Last year, Dr. Randy Guliuzza spoke in South Korea, and the new edition of our DVD series *Unlocking the Mysteries of Genesis* has subtitles in Spanish, Chinese, and Korean.

Most recently, Dr. Paul Holritz of the National Theological College and Graduate School (NTCGS) in Lexington, North Carolina, invited ICR speakers to a conference in Amman, Jordan. Dr. Holritz had prayed about including creationist speakers at the conference since most of the students and even pastors at NTCGS' Jordan campus knew little about biblical creation.

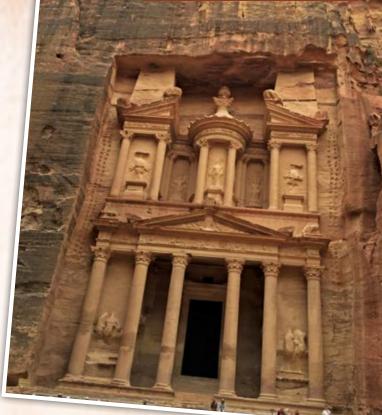
Our team believed the Lord wanted ICR to take advantage of this unique opportunity to train local pastors and, ultimately, to reach more people for Christ. "And the things that you have heard from me among many witnesses, commit these to faithful men who will be able to teach others also" (2 Timothy 2:2). So in spite of the unrest in the Middle East, ICR CEO Dr. Henry Morris III agreed to go. His wife Jan and his assistant Michael Hansen joined him on the trip to Amman.

### **Hungry Hearts**

In Jordan, Dr. Morris faced a steady stream of questions throughout each day and encountered the kind of hungry hearts that he only occasionally witnesses in the U.S. The Jordanian Christian community was confused about basic Bible doctrine and teachings and had a "sad lack of science information." Even the Christian school teachers were unaware of the teachings of biblical creation, using standard evolutionary textbooks. Many were steeped in false ideas but were ready to accept the truth of Scripture when they were taught.

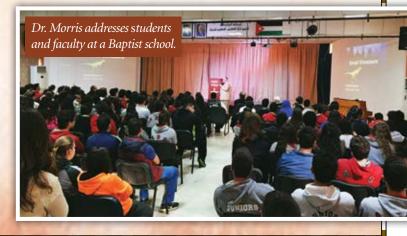
Dr. Morris found himself on call every day, every hour, regard-

Al Khazneh, "the Treasury," likely a tomb or monument to King Aretas IV, who ruled the Nabataeans from 9 B.C. to 40 A.D.



less of the location. Whether he was at conference presentations, in the midst of question and answer sessions, having a meal, traveling to and from venues, or visiting historical sites, Dr. Morris met people who eagerly wanted to know more about the biblical account of creation.

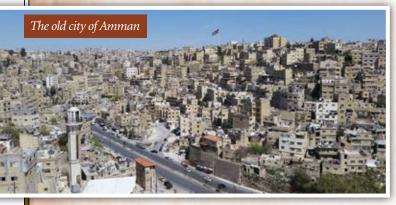
He spoke to the faculty and staff of a Baptist school, focusing on the incompatibility of evolution with both the Bible and science. Even though it was a Christian school, few of the teachers and students were evangelical Christians. At least half of both groups were members of the "majority religion" in Jordan, and only a small minority of the "Christians" would be considered evangelicals.



MAY 2015 | ACTS @ FACTS | 5

A biology teacher approached Dr. Morris after his presentation and inquired about carbon dating. Several of her students had raised technical questions during her classes, and she wasn't sure how to answer them. Dr. Morris pointed her to ICR's website as a resource for both herself and the students, many of whom are fluent in both Arabic and English. These Jordanian students—many who don't fully understand science and some who are not followers of Christ—now know where to look for answers to their questions. Dr. Morris was able to encourage them to use the ICR website for their studies. Many were excited to know about *That's a Fact* as well as the vast archives on ICR.org.

Dr. Morris also met with a local Jordanian creation scientist to answer questions and discuss future opportunities within the global creation science community. He also met with a prominent beekeeper—honey is a major product in the Middle East—who was interested in the research of ICR's Dr. Jeffrey Tomkins on the honeybee genome. Dr. Morris received many requests to go back to Jordan, and to visit Egypt and Lebanon as well. Dr. Morris summed up the enthusiastic response from the Jordanian believers: "We had constant questions and constant delight from very eager listeners."



#### Passionate Worship in Jordan and Beyond

One evening, Dr. Morris spoke to a church in the old part of the city of Amman. Many of the regular attendees were refugees from neighboring countries. One bilingual listener commented that she was captivated by Dr. Morris' voice, appreciating both his professional skill and the powerful content of the message.

During their times of worship, Michael Hansen noticed the passion of the Jordanian believers. He said, "We could sense their heart for the Lord in their passionate singing—they love to sing!" One worship song stood out, with Arab men singing with power and joy: *Jesus' life is in me, that is my song of victory, Jesus' life is in me, that is the assurance of victory, Jesus' life is in me, Jesus' life is in me* (translated from Arabic). Dr. Morris said, "At the time, we couldn't understand their words, but we could hear their hearts!"

Michael also said, "By taking this trip, ICR reached people from Jordan, Syria, Iraq, and Egypt, and neighboring areas. We defended the accuracy and authority of the Bible and clearly presented the gospel."



### **Creation Topics**

Dr. Morris presented six formal sessions at the NTCGS two-day creation conference. His presentations covered topics that many believers—whether in the U.S. or overseas—wonder about, including:

- Is Earth Billions of Years Old or Was It Created Recently?
- Can Creation Itself Show the Divine Nature of the Creator?
- Did God Really Create in Seven Days?
- What Happened After the Garden of Eden?
- Is There Evidence for a Global Flood?
- What Do Fossils Tell Us?

In addition to the conference sessions, Dr. Morris also spoke during a Baptist high school chapel service. The topic was the scientific and biblical evidence for dinosaurs, which captured the interest of both students and faculty. Dr. Morris spent time at several churches, using scripture passages that ministered to many different nationalities. The messages contained an overview of the creation week, the significance of each word in the text, and the importance of creation to salvation.

Attendees all insisted to the ICR team that the presentations were much needed in the Middle Eastern Christian community. Many had never heard a solid, biblical perspective on origins and Genesis before. The listeners expressed appreciation for the messages over and over— "This is the first time I've heard anything like this. Thank you."

One woman recorded the lectures on her phone to share with friends who couldn't attend the conference. She said, "I don't believe in coincidence. God made it possible for me to be here. I needed to hear these things. I want to hear much more." Many of the Jordanian believers throughout the week responded to the messages with a similar reaction: "No one ever told us."

#### Questions, Answers, and More Questions

One of the most encouraging segments of each teaching session was the Q&A time. The questions could have continued long into the night. Dr. Morris masterfully answered all of them with solid scientific and biblical evidence. Some of the questions he fielded included those that we often hear in the U.S.:

- Was there a gap of time between the first two verses of Genesis?
- Was there another world before creation?
- Did dinosaurs exist? How did they fit on Noah's Ark?
- What were the languages of the Bible and what do [specific words] mean?
- What was the earth like before the Flood? How does the Flood fit with history and science?
- How do you define "evolution"?
- Are genetic mutations beneficial?
- Were the men of the Old Testament really hundreds of years old?
- Did the Garden of Eden exist? Where was the Garden of Eden? Where is it now?
- Did animals talk?
- How did evil originate?
- Did God actually create darkness, or is it merely the absence of light?
- Are angels real?

During the last evening, the floor was again opened for the final Q&A session. As in the previous sessions, the questions were almost endless. The team had to force a cut-off so they could end the conference. There is an obvious need there for further education in the truth of God's Word and a correct understanding of science. Here are just a few of the questions addressed the final night:

- Was there one Ice Age or many ice ages, when was it, how long did it last, how did it fit in history?
- What are ICR's main research projects today?
- How did Noah get all of the animals onto the Ark?
- How did he take care of them?
- Why don't we find man buried in the fossil record?

### Petra, "the Rock"

During their stay in Jordan, Dr. and Mrs. Morris and Michael Hansen visited the historical site known as Petra, "the rock." From Amman, the group headed to Wadi Musa, the Dry Valley of Moses, before journeying on to stunning Petra. Throughout the sevenhour roundtrip, the group discussed faith, science, and the Creator, which was a great way to put into practice 1 Peter 3:15-16:

But sanctify the Lord God in your hearts, and always be ready to give a defense to everyone who asks you a reason for the hope that is in you, with meekness and fear; having a good conscience, that when they defame you as evildoers, those who revile your good conduct in Christ may be ashamed.

Petra is a popular tourist attraction, and the ambitious Bedouins capitalize on the opportunity to sell their wares to the international crowds. When the ICR group stopped to look at an engraving, a young Bedouin girl selling postcards and handmade jewelry aggressively pursued Mrs. Morris. Instead of callously brushing off the girl, Mrs. Morris took the opportunity to talk with her, showing kindness and extending God's grace to a darkened, veiled heart. During the conversation, she asked the girl, "Who do you worship? Allah? Or Jesus?"

In that moment, Mrs. Morris demonstrated the heart of ICR's ministry. ICR is more than an organization that reports scientific facts and teaches biblical creation—ICR exists to point people to our Creator and Savior, the only God worthy of our worship.



Jan Morris and a Bedouin girl

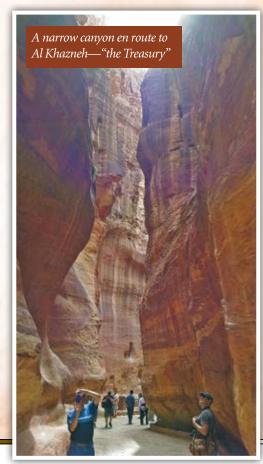
The tour guide presented a thorough history of "the Jordan," part of the biblical Holy Land. Abra-

ham, Lot, Moses, Elijah, Elisha, John the Baptist, and Jesus sojourned in Jordan. Several biblical nations once dwelt within the borders of Jordan: the Amorites, the Moabites, and the Edomites.

Only Israel has more biblical sites and associations than Jordan. Mount Nebo, Bethany, the place beyond the Jordan where John baptized Jesus, and even Lot's Cave are found in Jordan.

#### History of Petra

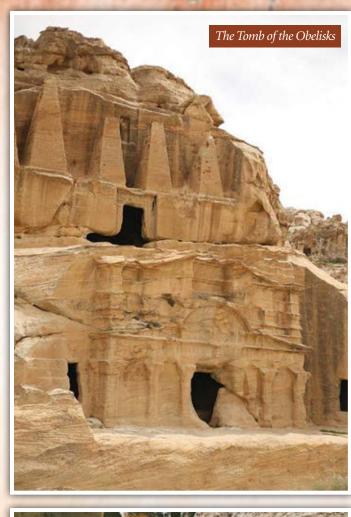
Petra is strategically situated only a dozen miles from two vital trade routes that linked the Persian Gulf and the Mediterranean Sea, and Syria and the Red Sea. Ancient Petra grew in prominence

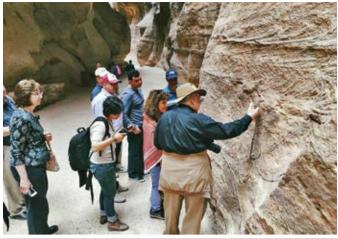


over the centuries—levying tolls on caravans of silk from the Far East and frankincense and myrrh from southern Arabia. By around 200 B.C., the city of Petra had developed into a rich and powerful trade center. One can picture a line of ancient archers atop the red cliffs, poised to defend the narrow valley leading into Petra.

The rock-cut façade known as the *Al Khazneh*, or "the Treasury," seems out of place in the rocky desert landscape of southern Jordan. The Corinthian columns reflect the western Hellenization of the area, but all the while Petra remained wholly Arab. The spectacular architecture was used as a setting for the 1989 film *Indiana Jones and the Last Crusade*.

The beauty of Petra is con-





On a narrow canyon wall in Petra, Dr. Henry Morris III points out the cross-bedded sandstone indicative of waterflow during the Flood of Noah's day. This is specifically the Umm Ishrin deposit—part of the Sauk megasequence found all over the world. Questions about carbon dating came up during the trek through Petra. Dr. Morris answered several geology inquiries using the rock walls as evidence of Noah's Flood. He pointed out various layers and rock types and taught the group the relevance of geology, the age of the earth, and the various dating methods used by scientists today. Many were excited that the things they learned strengthened their faith in the accuracy and authority of God's Word.

trasted by the tainted history of the idolatrous pagans who lived in this rocky landscape. Tombs throughout Petra are marked with representations of the plethora of ancient gods and goddesses they worshipped.

### The Need for Creation Resources

The Sunday before he returned home, Dr. Morris spoke to two more church congregations during morning and evening services, with a presentation titled "Three Worlds, Three Judgments, Three Demands" (see 2 Peter). The message resonated with the listeners, and they enthusiastically expressed their appreciation.

The team experienced delicious, traditional Jordanian meals shared by local believers who graciously demonstrated hospitality throughout the week. Mealtimes were also opportunities to discuss even more basic Bible questions.

Many attendees at each venue during the tour wanted ICR resources, even in English, and they implored Dr. Morris to make the resources available in Arabic. For information in English, he encouraged them to go to the ICR website. ICR also provided complimentary resources to several local school and college libraries:

- Creation Basics & Beyond
- The Book of Beginnings, Volumes 1-3
- Six Days of Creation
- Your Origins Matter
- 5 Reasons to Believe in Recent Creation

Dr. and Mrs. Morris and Michael were blessed during their stay to have a very gifted, godly man who interpreted for them. He also translated all of Dr. Morris' PowerPoint presentations into Arabic so the people attending could understand the visuals that accompanied each message.

Our time in Jordan has convinced us that the need for creation truth persists throughout the world. The needs we witnessed and the requests we heard urge us to do more. *Teach more, share more, give more*. The chorus of "thank you" from Jordanian believers still rings in our ears, while other words—*no one ever told us*—will continue to haunt us and challenge us to do even more.



Dr. Morris is Chief Executive Officer of the Institute for Creation Research, Mrs. Morris volunteers at ICR, and Michael Hansen is Executive Assistant to the CEO.

мау 2—3	Frisco, TX Truth & Love Conference redgracemedia.com/home/truth-love-conference-2/
мау 4—6	St. Charles, MO – 31 <sup>st</sup> Annual Family Covenant Ministries Conference and Curriculum Fair (J. Lisle) 314.920.6135
may 5	Farmers Branch, TX Metroplex Institute of Origin Science (MIOS) (J. Johnson) 972.965.2110
мау 7—9	Arlington, TX 2015 THSC Convention 806.744.4441
мау 18	Lindenhurst, IL Midwest Creation Fellowship - North (N. Jeanson) 847.223.4730
<b>may</b> 18–21	Chicago, IL 2015 Moody re Focus Pastors' Conference (N. Jeanson) 312.329.4407

Y )	Carol Stream, IL Midwest Creation Fellowship - West (N. Jeanson) 847.223.4730
Y )	Chicago, IL The Moody Church (N. Jeanson) 312.327.8600
r 24	Kissimmee, FL 2015 FPEA Florida Homeschool Convention (J. Lisle) 877.ASK.FPEA
Y	Tampa, FL Bayside Community Church (J. Johnson) 813.837.6007
Ý	Southlake, TX – Countryside Bible Church (R. Guliuzza, J. Lisle, N. Jeanson, B. Thomas,

 please contact the ICR Events Department at 800.337.0375, visit www.icr.org/events, or email us at events@icr.org

T. Clarey) 817.488.5381

MA

MA

MA

MA

3

MA

3

### LIVE WEBCASTI

VENTS

### www.ICR.org/webcast

### MAY 31, 2015

Countryside Bible Church in Southlake, TX. Dr. Randy Guliuzza, Dr. Jason Lisle, Dr. Nathaniel Jeanson, Brian Thomas, and Dr. Tim Clarey will present

### CREATION SUNDAY

### Sunday School Breakout Sessions 8:00, 9:30, & 11:05 a.m.

- Brian Thomas "Dinosaurs and the Bible"
- Dr. Tim Clarey "Creation Basics: A Recent Global Flood"\_\_\_\_\_\_

### Morning Worship Services 8:00, 9:30, & 11:05 a.m.

 Dr. Randy Guliuzza - "The Doctrine of Creation"

### Evening Worship Service 6:00 p.m.

 Dr. Jason Lisle - "Astronomy Reveals Creation"

### LOCATION

Countryside Bible Church 250 Countryside Ct. • Southlake, TX 76092 (817) 488-5381

### ІМРАСТ

# Heavy Metal Clocks, U-Pb and Th-Pb Dating Models: Radioactive Dating

The heavens declare the glory of God; and the firmament shows His handiwork. Day unto day utters speech, and night unto night reveals knowledge. There is no speech nor language where their voice is not heard. (Psalm 19:1-3)

he heavens do indeed declare the glory of God, but some people choose to believe that the heavens appeared by random chance out of nothing—a stance for which they are "without excuse." Paul so forcefully points out in Romans 1:18-20 that *who God is* can be understood "by the things that are made." These people tend to support their beliefs with various scientific models such as the radioactive dating methods we have been examining in this series. This article will address the uranium-lead (U-Pb) and thorium-lead (Th-Pb) models.

Along with stratigraphic assumptions, the U-Pb and Th-Pb dating methods have been regarded as the gold standard for "deep-time" dating. Very few in the geochronology field would dare question the results of these dating methods, and therefore, by consensus, they are considered as scientific fact within the secular scientific community.

Unlike our previous radioisotope clocks, which were based on a single parent-daughter decay sequence, the U-Pb and Th-Pb-based clocks involve multiple daughters in the decay chains, from <sup>238</sup>U to <sup>206</sup> Pb, <sup>235</sup>U to <sup>207</sup>Pb, and <sup>232</sup>Th to <sup>208</sup>Pb. Fortunately for geochronologists, the daughter isotopes produced in each decay chain are unique to that decay chain, and the half-lives of <sup>238</sup>U, <sup>235</sup>U, and <sup>232</sup>Th are all much greater than the half-lives of any daughter in their respective decay sequence. Thus, each decay series is in a condition generally known as *secular equilibrium*<sup>1</sup> when used for deep-time estimates and can generally be mathematically represented as a single decay sequence:

 ${}^{238}_{92}U \rightarrow {}^{206}_{82}Pb + 8 {}^{4}_{2}He + 6 \beta^{-} + Q$ where Q = 51.7 MeV/atom  ${}^{235}_{92}U \rightarrow {}^{207}_{82}Pb + 7 {}^{4}_{2}He + 4 \beta^{-} + Q$ where Q = 46.4 MeV/atom  ${}^{232}_{90}Th \rightarrow {}^{208}_{82}Pb + 6 {}^{4}_{2}He + 4 \beta^{-} + Q$ where Q = 42.6 MeV/atom

Uranium and thorium are both members of the *actinide series* of elements. Elements in this series progressively fill the 5f electron orbitals and thus have similar electron configurations. Since the chemical properties of an element depend upon its electron structure, members of the actinide series have similar chemical properties. Thus, they can substitute freely and extensively for each other. This means that as <sup>238</sup>U, <sup>235</sup>U, and <sup>232</sup>Th proceed through their decay chains, they can easily become separated from their final daughter isotopes, <sup>206</sup>Pb, <sup>207</sup>Pb, and <sup>208</sup>Pb respectively. This is especially true for the radon

(Rn) gas daughters of each decay chain, which are in the gaseous state at temperatures above -71 °C, in each decay sequence. If that separation distance is larger than the sample size, then significant error will be introduced in any attempt to date that rock formation because the correlation between parent and daughter has been broken.

The early 20th century experienced a rush to use these decay sequences as clocks for measuring the ages of rocks in which they were found. Five basic methods were tried that depended on the accumulation of He or Pb in the rock formation being dated.

Method 1: The chemical Pb-U, Th method Method 2: The Pb-alpha method Method 3: The U-He method Method 4: The U, Th-Pb isotopic method (isochron method) Method 5: The common-lead method<sup>2</sup>

For reasons spelled out by Gunter Faure (reference 2), the first three methods are no longer commonly used. It is interesting to note that recent work using Method 3 yields very young ages for supposedly ancient rocks.<sup>3,4</sup> Method 4 takes us back to an old friend (isochron dating), and Method 5 will be covered in a subsequent *Acts* & *Facts* article. The isochron equations for each of the decay series, using non-radiogenic <sup>204</sup>Pb as the index isotope, can be expressed as:

$$\begin{pmatrix} 208 \\ 82 \\ 204 \\ 92 \\ 82 \\ Pb \end{pmatrix} = \begin{pmatrix} 206 \\ 82 \\ Pb \\ 82 \\ Pb \\ 204 \\ Pb \end{pmatrix}_{i} + \begin{pmatrix} 238 \\ 82 \\ 82 \\ Pb \\ 82 \\ Pb \\ 82 \\ Pb \end{pmatrix}_{i} (e^{\lambda_{1}t} - 1)$$

$$\begin{pmatrix} 207 \\ 82 \\ 204 \\ Pb \\ 82 \\ Pb \\ 1 \end{pmatrix} = \begin{pmatrix} 207 \\ 82 \\ 82 \\ 82 \\ Pb \\ 82 \\ Pb \\ 1 \end{pmatrix}_{i} + \begin{pmatrix} 235 \\ 82 \\ 82 \\ 82 \\ Pb \\ 82 \\ Pb \\ 82 \\ Pb \\ 1 \end{pmatrix} (e^{\lambda_{2}t} - 1)$$

Solving each of these equations then yields three independent determinations for any rock formation containing both U and Th. The solutions to these equations depend upon the same four basic assumptions that all radioisotope dating methods depend on, plus the homogeneous assumption necessary for all isochron-based methods; i.e.:

- (1) The rock formation from which the samples were taken has remained a closed system to U, Th, Pb, and all intermediate daughter isotopes throughout its history.
- (2) The initial concentration of either the daughter or parent isotope can be definitively determined.
- (3) The decay rates of U, Th, Pb, and all intermediate daughter isotopes have remained constant throughout the history of the rock formation.
- (4) That the earth is old enough for the extremely low decay rates of <sup>238</sup>U, <sup>235</sup>U, and <sup>232</sup>Th to have produced measurable levels of the final daughter isotopes <sup>206</sup>Pb, <sup>207</sup>Pb, and <sup>208</sup>Pb respectively.
- (5) And finally, that all parent and daughter isotopes are uniformly distributed throughout the rock formation.

As pointed out in previous articles of this series, these assumptions are tenuous at best, and the methods do not reproduce known ages of rock formations. Since these are the primary methods for establishing the age of the solar system, a new question arises: Where do the heavier elements in the periodic table come from? Nuclear physics tells us that there are only two ways that heavier elements can be produced from lighter elements—by nuclear transfer reactions and/or nuclear fusion reactions.<sup>5</sup> But nuclear transfer and fusion reactions are only self-sustaining if they are exothermic (i.e., if they give off energy). This means that they cease to produce heavier elements unless they are part of a system that produces enough energy to drive the reactions forward when they become endothermic (i.e., when they need energy to proceed). Stars are the only known objects in the universe that can potentially do this. Self-sustaining fusion in stars is only possible for elements below iron in the periodic table.

Now another subtle assumption creeps into the radioisotope dating paradigm. It has been hypothesized that the heavy elements in our solar system come from a cluster of supernova explosions about ten million years ago that produced a "local bubble" around our solar system.<sup>6</sup> All heavy elements supposedly came from this explosion, which left a peanut-shape region of space approximately 300 light-years long and containing gas at roughly one million degrees. Many questions now arise. How has a gas in interstellar space remained at one million degrees for ten million years? What is the link between this hot gas bubble and supernovas? How did such a low residual density of gas (0.001 atoms/cm<sup>3</sup>) "seed" the relatively large amounts of heavy elements currently observed in our solar system?

Finally, it would take approximately  $1.8 \times 10^{10}$  kJ/mole to form one mole of <sup>238</sup>U by fusing four V atoms—a highly improbable reaction to begin with. How does a supernova generate this kind of energy to form not just <sup>238</sup>U but *all* the elements heavier than iron? Perhaps "the heavier elements are primordial" is a better explanation. Origins of the heavy elements, cosmological production of the parent and daughter isotopes, and migration of the intermediate daughter isotopes in these decay chains make Method 4 suspect and certainly not a methodology that meets the criteria for scientific fact. Our next article will take a closer look at Method 5.

#### References

- Faure, G. 1986. *Principles of Isotope Geology*, 2nd ed. New York: John Wiley & Sons, 44-45. Secular equilibrium is a condition in a radioactive decay chain where the rate of growth of the final radioactive daughter is equal to the rate of decay of the parent that initiates the decay chain.
   Ibid, 282-283.
- Humphreys, D. R. et al. Recently measured Helium diffusion rate for Zircon suggests inconsistency with U-Pb age for Fenton Hill Granodiorite. EOS, Transactions of the American Geophysical Union. 84 (46), Fall Meeting Supplement, Abstract V32C-1047, 2003b.
- Humphreys, D. R. et al. 2004. Helium Diffusion Age of 6,000 Years Supports Accelerated Nuclear Decay. Creation Research Society Quarterly. 41 (1): 1-16.
- 5. One type of nuclear transfer reaction begins with two nuclei that collide and, in the process, exchange mass to produce two or more different nuclei; this is called a nuclear pick-up reaction. A good example of this is <sup>7</sup><sub>4</sub>Be + p → <sup>8</sup><sub>5</sub>B + γ, where a proton is picked up by the beryllium atom to become a boron atom and a gamma ray. A nuclear fusion reaction begins with two nuclei that collide and become one much heavier nucleus. A good example

of a nuclear fusion reaction is  ${}_{2}^{4}\text{He} + {}_{14}^{24}\text{O} \rightarrow {}_{15}^{32}\text{S} + \gamma$ , where a helium nucleus fuses with an oxygen nucleus to form a sulfur nucleus. These are the types of reactions that we believe fuel stars.

 Phillips, T. Evidence for Supernovas Near Earth. NASA Science /Science News. Posted on nasa.gov August 26, 2014, accessed February 15, 2015.

Dr. Cupps is Research Associate at the Institute for Creation Research and received his Ph.D. in nuclear physics from Indiana University-Bloomington.



### Settling the Dinosaur Weight Debate

eren't dinosaurs too big to fit on the Ark? Creation scientists need accurate estimates of average animal sizes to determine the feasibility of fitting all animal "kinds" on the Ark. Because dinosaurs were on the Ark,<sup>1</sup> an accurate value for their average size is important when making these calculations.<sup>2</sup> Previously, dinosaur size estimates were derived from the recollections of fossil hunt-

ers, with few values based on empirical data.<sup>3,4</sup> Our recently published journal paper used the most up-to-date and comprehensive survey of dinosaur sizes available<sup>5</sup> to demonstrate that the average (median) adult dinosaur weighed about 1,390 pounds, around the size of an American bison.<sup>6</sup>

Our data set began with a survey of over 900 species.<sup>5</sup> We eliminated all birds and the dinosaur species that lacked measured values and pared down our final dinosaur data set to 350 species. The designations allowed division of the dinosaurs into five suborders, enabling us to determine the average size for each major dinosaur type. Finally, we extracted the Flood burial level (stratum) for 348 of the 350 species.

While dinosaurs were distributed across a large spectrum of sizes, most could be grouped into two categories—those that stayed very small (under 130 pounds) and those that grew quite large (2,380 to 123,500 pounds). Those found buried in the lowest and earliest dinosaur-bearing Flood layers were virtually all small, although there were many small dinosaurs buried throughout the entire range of dinosaur-bearing rocks. There was a general size increase upward into younger Flood layers, but it was not universal or statistically strong.

The largest sauropodomorphs (long-necked dinosaurs like *Apatosaurus*) were found buried about midway through the Flood record of dinosaurs. Ornithopods (duck-billed dinosaurs) showed a steady increase in size from earlier to later Flood deposits, attaining the greatest size in the uppermost dinosaur-bearing strata. Theropods (like *T. rex* and *Allosaurus*) also generally showed an increase in size from the earliest to the later Flood deposits but had a small

peak in size in the middle of the dinosaur-bearing strata, similar to sauropodomorphs.

These data demonstrate that the average adult dinosaur size was not that of a large dog or pony—a misconception first promoted by evolutionary paleontologists in the 1990s during the heyday of the *Jurassic Park* movies. While dinosaurs grew to a wide range of sizes, the average was about that of a bison. However, just because the me-

> dian dinosaur size was fairly large, it does not mean there was a room problem on the Ark. Most dinosaur pairs on the Ark would likely have been smaller juveniles—

not the large mature dinosaurs often seen in museums.<sup>7</sup> Thus, the dinosaurs taken on the Ark might have only averaged 150 to 500 pounds—or about sheep-size.

It appears many young dinosaurs went through a year or two of rapid growth, a growth spurt similar to teenage humans.<sup>8</sup> Dinosaurs were probably taken on the Ark about a year prior to this growth spurt when they needed less to eat and took up minimal space. After the Flood and upon their

release to the land, the dinosaurs would have rapidly matured to adult size and sexual maturity—perfectly able to fulfill God's command to repopulate and fill the Earth (Genesis 9:7). ●

#### References

- 1. Genesis 7:7-9 indicates that Noah took with him representatives of "everything that creeps on the earth," which would have included dinosaurs.
- Woodmorappe, J. 1996. Noal's Ark: A Feasibility Study. Dallas, TX: Institute for Creation Research, 3-135.
- 3. Crichton, M. 1995. The Lost World. New York: Ballantine Books.
- 4. Horner, J. R. and D. Lessem. 1993. The Complete T. Rex. New York: Simon & Schuster.
- Benson, R. B. J. et al. 2014. Rates of Dinosaur Body Mass Evolution Indicate 170 Million Years of Sustained Ecological Innovation on the Avian Stem Lineage. PLOS Biology. 12 (5): 1-11.
- Clarey, T. L. and J. P. Tomkins. 2015. Determining Average Dinosaur Size Using the Most Recent Comprehensive Body Mass Data Set. Answers Research Journal. 8: 85-91.
- 7. Clarey, T. 2013. ICR's Toddler Duck-Billed Dinosaur: Eddie. Acts & Facts. 42 (10): 9.
- Erickson, G. M., K. C. Rogers and S. A. Yerby. 2001. Dinosaurian growth patterns and rapid avian growth rates. *Nature*. 412 (6845): 429-433

Dr. Clarey received his Ph.D. in geology from Western Michigan University. Dr. Tomkins received his Ph.D. in genetics from Clemson University. Dr. Clarey and Dr. Tomkins are Research Associates at the Institute for Creation Research.



ve was challenged with the first recorded dilemma. On the one hand, God indicated that on the day Eve and Adam ate from the tree of the knowledge of good and evil, their immortal bodies would become mortal and subject to eventual death (Genesis 2:17). On the other hand, the flattering serpent suggested the opposite—promising that eating from that tree would *not* result in death but instead would make Adam and Eve like God (Genesis 3:4-5). How was Eve supposed to know whom to believe?

BACK TO GENESIS

Eve chose to evaluate the situation by her own standard. She opted to use her mind and her senses to judge who was telling the truth. She examined the tree with her eyes and recognized that it was delightful to look at, good for food, and desirable for wisdom (Genesis 3:6). Her preliminary "scientific" analysis suggested that the serpent's hypothesis might be correct and that God's word—His clear warning—was wrong. After all, the fruit did not appear dangerous; there was nothing obviously defective with it that would suggest eating it would result in death. So, she took and ate and gave to Adam, who did the same.

Today, we face a similar dilemma. On the one hand, we have God's Word, which teaches things like the six days of creation, a global flood, and the resurrection of Christ. On the other hand, we have the words of people who claim that such things are simply not possible. How are we supposed to decide who is right?

Like Eve, we are inclined to judge God's Word based on our senses and our understanding of what is possible. For some people God's Word passes the test, and for others it does not. But either way, the test itself is defective because it attempts to judge the *infallible* Word by standards that are *fallible* because they are human standards. We must admit that our senses can be mistaken at times (e.g., an optical illusion), and our understanding of what is possible is often wrong, as the history of science has shown. Therefore, it makes no sense to judge a per-

# HOW COULD EVE KNOW?

fect standard (the Word of God) by a fallible standard (human sensation and reasoning). This would be like a young child who knows nothing about mathematics going through a college-level calculus textbook and attempting to correct what he perceives to be errors.

So when Eve attempted to judge the infallible by the fallible, she was not only being immoral but irrational as well. After all, she was attempting to use her mind and her senses to judge whether God was honest. But who made Eve's mind? God did. And who made Eve's senses? God did. So, if God were dishonest, then Eve would have no reason to trust her mind or her senses in the first place. The same is true of people today who attempt to judge the Bible by their own fallible standard. This is immoral because it puts God to the test (Matthew 4:7). But it is also *irrational* because if the Bible were not true, then people would have no good reason to trust their own minds or their own senses by which they come to the conclusion that the Bible is or is not true!

How then *should* Eve have responded? She should have recognized that God's truthfulness is a logical prerequisite for her mind and senses to be even remotely reliable. So, by virtue of the fact that she was able to correctly understand the serpent (using her mind and her senses), God *must* be truthful. Therefore, the serpent was lying.

God expects us to reason using our minds and to rely on our senses but not to judge Him and His perfect Word by these lesser standards. He expects us to rely upon His revealed Word as the ultimate standard for judging everything else. Remember, it is not our minds that ultimately judge God's

Word; rather, it is God's Word that will judge our minds (Hebrews 4:12). ●

Dr. Lisle is Director of Research at the Institute for Creation Research and received his Ph.D. in astrophysics from the University of Colorado.





JEFFREY P. TOMKINS, PH.D.

## **Snake Venom, Genetic Entropy, and Adam's Curse**

nbelievers and Christians alike often ask, "How could a good god make creatures with toxic venom?" According to the Bible, God originally created the world free of death, disease, and violence. When Adam and Eve rebelled, the entire creation was subjected to a curse that resulted, among other things, in venomous snakes, stinging arthropods, and diseasecausing pathogens.

A major question facing creation biologists is how this curse has affected the genomes of modern creatures that defy the idea of a perfect creation, such as poisonous snakes. A highly plausible, biblical, and scientific model is now emerging and gaining validity thanks to recent snake studies. This model is based on information corruption in the genome, sometimes referred to as *genetic entropy*. Support for this idea is based on the fact that genes and their regulatory sequences have become corrupted through genome degradation—resulting in traits inconsistent with the original intent of God's creation.

Evolutionists originally believed new snake venom genes came about by the duplication of genes that have other important tasks in the snake's body. However, in a recent study, scientists found that duplication of regions containing genes rarely produces anything good.<sup>1</sup> Instead, they took a different

approach and looked for other explanations of snake venom outside the standard evolutionary framework. The researchers analyzed and compared gene expression in venom glands and other body tissues in a wide variety of venomous and non-venomous snakes. They even included tissues from the gecko, a little lizard.

Amazingly, the researchers claimed, "We find the hypothesis that snake venom evolves through the duplication of physiological or body genes and subsequent recruitment into the venom gland to be unsupported by the available data," and "indeed for a large number of the gene families claimed to have undergone recruitment [used for other purposes after being duplicated] we find evidence of a diverse tissue expression pattern, including the salivary gland of nonvenomous reptiles."1 The key importance of this discovery is that venom genes are not the products of hypothetical evolutionary processes (i.e., gene duplication). Instead, the data show they are important DNA sequences that serve other purposes in a wide variety of reptile tissues. We see the same thing in the human body-the same genes are expressed in a variety of different tissues.

In another study, researchers utilized a comprehensive set of 24 reptilian venomgene families that they compared to the genome of the Burmese python, a nonvenomous snake.<sup>2</sup> They also analyzed gene expression datasets from 12 different python

> tissues. This research further vindicated the emerging genetic model revealed by the previous study, namely that the genes that

encode venom proteins are not specific to venom glands but are actually expressed in many different tissues throughout the snake's body. The difference in the venom glands is that some genes are expressed in much greater quantities—resulting in greater amounts of venom proteins. This dosage-dependent phenomenon explains the toxic properties of venom. The purpose of these proteins produced at lower concentrations in other bodily tissues has not been fully investigated and is not well understood.

Interestingly, the first study also showed that the increased expression of venom genes was probably due to the corruption of regulatory DNA sequences that act like switches outside the gene itself.<sup>1</sup> These specialized genetic sequences tell the gene what tissues to function in and how much product to make. Therefore, mutations in these regions cause genes to become misregulated, resulting in elevated levels of proteins in venom glands for some snake species. Creation scientists would predict this type of scenario resulting from the corruption of genetic information associated with the curse and the degradation of the genome over time.

Both studies indicate that venom genes serve other non-venomous purposes in a variety of reptile tissues. The toxic amounts of venom proteins in modern venomous snakes are likely due to the genomic degradation of regulatory switches that alter a gene's expression patterns. Research has shown that genomes have undergone a process of information corruption initiated during the Adamic curse, not an upward evolutionary improvement.

### References

- Hargreaves, A. D. et al. 2014. Restriction and recruitment – gene duplication and the origin and evolution of snake venom toxins. *Genome Biology and Evolution*. 6 (8): 2088-2095.
- Reyes-Velasco, J. et al. 2015. Expression of venom gene homologs in diverse python tissues suggests a new model for the evolution of snake venom. *Molecular Biology and Evolution*. 32 (1): 173-183.

Dr. Tomkins is Research Associate at the Institute for Creation Research and received his Ph.D. in genetics from Clemson University.

### **Corrections Do Stars Still** Form Today?

#### BRIAN THOMAS, M.S.

EATION Q&A



"Our own Milky Way produces, on average, at least one new star every year," begins a Univer-

sity of Michigan news story detailing how galactic dust interactions may regulate star formation.<sup>1</sup> However, Genesis says, "He made the stars also.... So the evening and the morning were the fourth day," suggesting that God made all stars in the beginning.<sup>2</sup> How could stars still be forming if He finished making them on "the fourth day"?

To begin, we could examine the evidence that leads most secular astronomers to believe new stars are born each year. One would think they use telescopes to watch a new star ignite where there were no stars the day before. But this never happened. No one has ever witnessed a new star "turn on."

Instead of direct observations, secular astronomers employ uniformitarian logic to draw their conclusions. Uniformitarianism assumes that the natural processes we observe today, rather than God's direct creation, explain the origin of all things. Peter warned that this idea would also creep into the Church and lead believers away from the truth of Scripture. He said that in the last days scoffers would try to remove the miracles of creation and the Flood from history by insisting that "all things continue as they were from the beginning."3 Subscribing to this philosophy, astronomers who will "not glorify Him as God" believe that swirling gases somehow form stars, not God.<sup>4</sup>

Blue stars burn out in less than a million years. But because secular astronomers believe galaxies are billions of years old, they adopt the concept of continual new star formation to explain the ones we see today. To account for the particular number of stars in the entire Milky Way, they calculate that at least one new replacement star must be born every year.

The logic begs the question by assuming that stars form today before concluding that stars form at a certain rate. In other words, it assumes uniformitarian philosophy before even approaching any evidence.

The belief that galaxies naturally formed billions of years ago comes from personal bias, not science. If our universe were that old, we would see countless millions of supernova remnants from all the stars that died over the eons—and we don't. Recent creation accounts for the few supernova remanants we do see.<sup>5</sup> If God made the universe only a few thousand years ago as revealed in Genesis, then there has not yet been enough time for all its blue stars to expire—explaining the relatively minimal supernova shrapnel we see in the universe and why so many of the blue stars still shine.

In addition, physics refutes the idea that gas particles naturally come together to build stars. ICR astrophysicist Jason Lisle recently wrote, "Gas is very resistant to being compressed....[I]n a typical nebula, the gas pressure far exceeds the miniscule force of gravity."<sup>6</sup> So, those who assert that stars still form should answer several questions. Has anyone actually seen a new star ignite? If stars form by natural forces, then which natural force overcomes the outwardpushing gas pressure?<sup>7</sup> Finally, if stars do not actually form today, then shouldn't galaxies with blue stars be considered less than a million years old?<sup>8</sup>

Modeling ways that dusty interactions may regulate star formation simply wastes time if nature doesn't form stars today. After removing uniformitarian thinking, we observe that the Milky Way actually produces, on average, zero new stars every year. Along the way, we also discover that Genesis got star formation right. ●

#### References

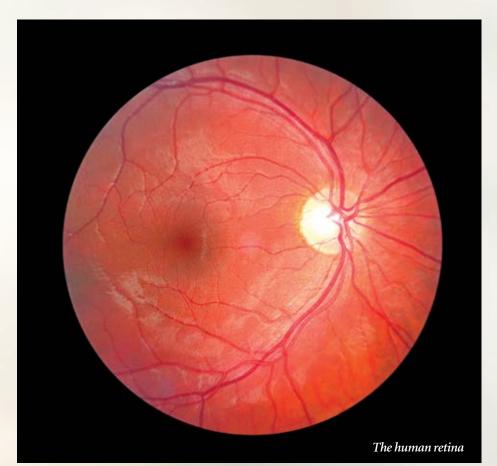
- A star is born: Galactic 'rain' could be key to star formation. Michigan State University news release. Posted on msutoday.msu.edu March 4, 2015, accessed March 4, 2015.
- 2. Genesis 1:16, 19. See also Psalm 136:7-9.
- 3. 2 Peter 3:3-4.
- 4. Romans 1:21.
- Thomas, B. Rare Supernova Recalls Missing Remnants Mystery. *Creation Science Update*. Posted on icr.org September 6, 2011, accessed March 13, 2015.
- Lisle, J. 2012. Blue Stars Confirm Recent Creation. Acts & Facts. 41 (9): 16.
- If shockwaves from a nearby exploding star squeeze gases close enough for gravity to begin crushing them into a new star, then how did the first star form when no stars yet existed?
- This includes all spiral galaxies and many others, and includes galaxies both near and very far away.

*Mr. Thomas is Science Writer at the Institute for Creation Research.* 



### MADE IN HIS IMAGE: LIVING LIGHT DETECTORS DECLARE DESIGN

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



uppose you are an electronic engineer tasked with devising a mechanism that can translate ordinary variations of light into useful information. But here is the tricky part: It has to work inside a living person. Your engineering instincts instantly recognize the mechanism will require multiple parts—primarily a light detector and a data-processing center—working together for a single purpose.

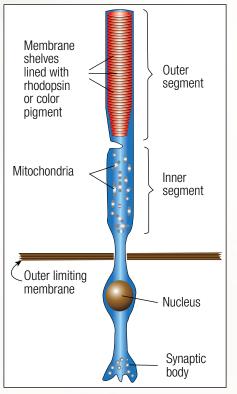
You recall people have been sending messages to each other for centuries simply by flashing a light in a coded sequence. The people who send and receive these flashing messages must know "the code" in advance. However, light is simply a condition of nature—it is either present or it is not. It does not convey information or send instructions to organisms in and of itself. Processing data into useful information happens within the neurological center of an organism. Fortunately, the required data-processing element of the mechanism is already built into the person's brain, saving you decades of work. All you have to do is devise a sensor to detect light and send that data to the brain. So, how would you begin your task?

That was the engineering undertak-

ing of the Lord Jesus when He designed the light detectors, called *photoreceptors*, that He placed in the retina of our eyes (and the eyes of all other light-sensing organisms). We needed something that could act as an interface between the physical conditions around us and our internal realm of thought and consciousness. Our Lord's ingenious solution was to use a molecule that could change shape when exposed to a single photon of light—the smallest unit of light there is!

In high school biology, students learn about the two types of photoreceptor cells called *rods* and *cones*. Rods enable us to see in darker conditions and cones give us both color vision and fine visual acuity. Only cones abide in the part of the retina where incoming images are precisely focused, and they are responsible for high-resolution vision. Humans have over 250 million photoreceptors, with about 120 million rods and six million cones in each eye.

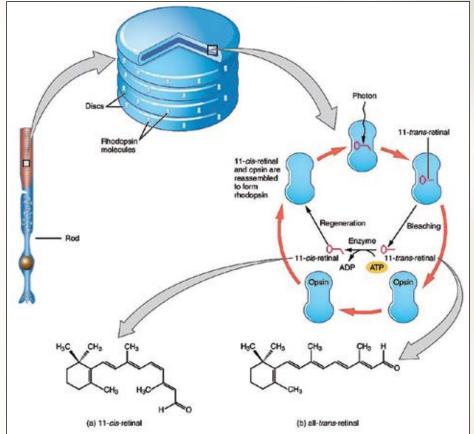
Even with myriads of photoreceptors covered by tens of thousands of lightsensitive molecules called rhodopsin, a photon of light is very tiny and may pass between the rhodopsin molecules without actually hitting any of them. From an engineer's perspective, one effective way to ensure that a photon will strike a molecule is to embed thousands of molecules randomly along a flat membrane and then stack many membranes on top of each other facing the direction of incoming light. This strategy covers the area occupied by any photoreceptor with rhodopsin molecules and is precisely how your photoreceptor is designed, procuring any light available to enable your sight (see the outer segment in Figure 1).



**Figure 1.** A rod photoreceptor cell. The outer segment is the light-sensitive portion. The inner segment and nucleus are essential for cell metabolism and replenish the outer segment. The synaptic body connects the photoreceptor to the nervous system that transfers data from the receptor to the brain.

Designed rhodopsinin reveal clever design by being sensitive to both the presence of light and its different characteristics for exhibiting colors. The rhodopsin molecule has two main elements, a specific chemical form of vitamin A and its attached protein called an opsin. The selection of the vitamin A aldehyde was a perfect choice since it can change shape when exposed to light. The different colors one sees in a rainbow correspond to the different frequencies of light energy that, taken together, make white light. Remarkably, various opsins are "tuned" to different frequencies of light, so any individual opsin may confer the ability to see a limited range of color-such as reds, greens, or blues. More than 300 different opsins have been identified, serving as an essential molecule for sight in a variety of creatures.

The Lord Jesus designed an ingenious



**Figure 2.** A rod photoreceptor cell rhodopsin generation cycle. The vitamin A aldehyde called retinal changes shape when exposed to a photon light particle. It detaches from the opsin protein, which is then activated to initiate a chemical cascade that results in a neurological signal sent to the brain. Retinal is then reconfigured (from 11-trans-retinal to 11-cis-retinal) by dedicated enzymes and reattached to opsin to complete the cycle in preparation for the next photon encounter.

biochemical process enabling photoreceptors to generate the visual data that are sent to the brain. When the photoreceptors are not exposed to light, enzymes dedicated to working on the vitamin A aldehyde impart energy into it by bending it from its normally straight shape and then attaching it to an opsin molecule. In this state, rhodopsin is primed for activation by a single photon of light. When light strikes rhodopsin, the energy in the vitamin A aldehyde is released, and it snaps back to its straight shape and detaches from the opsin. The cascading effect results in a small change in voltage across the membrane of the photoreceptor and the release of a neurotransmitter (see Figure 2). This sends what amounts to one bit of recognizable data to the brain.

Photoreceptors are constantly sending billions of data bits to the brain, which processes the data and then associates it with catalogued memories. When organized matches are made, a person instantly realizes the perception of vision in the form of useful information. Both of these precisely designed features—an effective light detection system and the data-processing capability of the brain—are needed for sight to occur.

Human engineers find solutions to problems via the design process using engineering principles. The incredible engineering genius of the Lord Jesus Christ is clearly seen in the things He made as they reflect the same principles...only at a scale and level of

complexity our best human engineers today can only dream of. ●

Dr. Guliuzza is ICR's National Representative.



JERRY BERGMAN, PH.

### **Raymond Damadian**, Inventor of the MRI

r. Raymond Damadian is the "father of the MRI" (Magnetic Resonance Imaging). MRI is widely recognized as "one of the great medical breakthroughs of the 20th century" and has saved and enhanced countless lives.<sup>1</sup>

While studying violin at the worldfamous Juilliard School of Music, Damadian competed with nearly 100,000 applicants and won a Ford Foundation Scholarship. He was only 15. This enabled him to complete a mathematics degree at the University of Wisconsin. He then earned his medical degree at the Albert Einstein College of Medicine and later did graduate work in biophysics at Harvard.

Damadian then became a professor at the State University of New York Downstate Medical Center, where he taught until he founded a company to manufacture MRI scanners.<sup>2</sup> He also published widely in peerreviewed scientific literature, including a highly cited cover article on MRI in the leading journal *Science*.<sup>3</sup>

MRI, the premier medical diagnostic imaging method in use today, is a 10+ billion-dollar-per-year industry. MRIs are able to detect diseased tissue or injury more accurately, safely, and efficiently than any other medical imaging technique.<sup>4</sup> Over a billion MRI scans have been completed since its invention, with over 60 million additional scans each year.<sup>5</sup>

Damadian first got the idea while using nuclear magnetic resonance (NMR) to scan salt-loving bacteria called *halophiles* that contain 20 times greater potassium levels than most bacteria.<sup>6</sup> The results were so promising that Damadian realized the technique could be used to diagnose cancer and other diseases in humans.<sup>7</sup> From that time forward, he spent most of his career developing the MRI medical body scanner to achieve this goal.

In 1970, he documented a major difference in MR signals between cancer and normal tissue, as well as major differences among normal tissue types—a critical discovery that made MRI scans possible. As early as 1973, articles appeared in popular magazines about his achievements.<sup>8</sup>

His wife, Donna, wrote that Damadian had "great faith in the Lord and that, with His help, he'd be able to" achieve his goal of developing MRI technology to help diagnose disease. In his struggle to develop MRI, she added that the "Lord always seemed to look after him."<sup>9</sup> After much work, he achieved his goal of developing a functional MRI and soon after began manufacturing these extraordinary machines.



How could a scientist achieve his goal of discovering the absolute truths that govern the natural world without the blessing of the Author of those truths? For me now the true thrill of science is the search to understand a small corner of God's grand design, and to lay the glory for such discoveries at the Grand Designer's feet.

#### **Recognition of Damadian's Achievements**

In 1988, President Ronald Reagan awarded the National Medal of Technology jointly to Dr. Damadian and Dr. Paul Lauterbur for their contributions to the development of MRI. In 1989, Damadian was inducted into the National Inventors Hall of Fame, joining other distinguished men, including Thomas Edison, Alexander Graham Bell, Samuel F. B. Morse, and the Wright Brothers. The first MRI scanner ever built-Damadian's own machine called "Indomitable"-was placed in the Smithsonian Institution the same year. In March 2004, he was awarded The Franklin Institute Medal "for his development and commercialization of magnetic resonance imaging ... which has transformed the diagnosis and treatment of disease."10

### His Christian and Creationist Involvement

Damadian became a born-again Christian in 1957 at a Billy Graham crusade in Madison Square Garden.<sup>11</sup> Extensive reading and study on science and theology put his Christian faith on firm footing, especially on the creation-evolution question. He also became keenly aware of the fallacy of Darwinism. Since then, Damadian has been very active in supporting creationism.12 He writes that he now understands

what the Apostle Paul calls the renewed mind. Out of a mind renewed by Jesus came the obvious. How could a scientist achieve his goal of discovering the absolute truths that govern the natural world without the blessing of the Author of those truths? For me now the true thrill of science is the search to understand a small corner of God's grand design, and to lay the glory for such discoveries at the Grand Designer's feet.13

A problem Damadian soon encountered was the "aggressively secular environment of academics and science," noting that he faced the fact that a scientist looks

at the experiments he is performing under conditions he himself is manipulating, and jumps to the conclusion that he thinks he understands how creation took place, and God wasn't necessary. This becomes the root of atheism, and it got hold of me.14

Dr. Damadian added that he read the Bible from cover to cover, observing that

for the scientific mind, the Bible is wonderful if you read it from start to finish. It fits together with an astonishing consistency, which was the opposite of my secular perception. My early impressions were that it was rife with contradictions.14

This impression was demolished by his study of the issue of biblical credibility on the creation issue. One problem Damadian was concerned with was

some theologians and preachers qualified certain statements in the Bible, making their accommodations with the scientific world, saying...most of the claims for creation and for miracles have alternate explanations. If the Bible has to be qualified at every verse, then it isn't long before you drift away from its authority.14

Damadian's deeply held religious beliefs, specifically his conclusions on origins, are detailed in his new book, Gifted Mind.15 As an active creationist, he has served on the boards of several creation organizations, including the Institute for Creation Research and the Answers in Genesis Creation Museum.

Dr. Damadian is one of many scientists who have realized science does not lead to Darwinism; rather, science leads us to the feet of the Grand Designer.<sup>15,16</sup>

Acknowledgments: I would like to thank Raymond Damadian, M.D., Michael Dennis, Ph.D., Peter Lassen, M.Sc.E., and Dr. Damadian's assistant, Ellen Yeske.

#### References

- 1. Evans, H. 2004. They Made America: From the Steam Engine to the Search Engine. New York: Doubleday, 442. Weiss, R. 2003. Prize Fight. Smithsonian. 34 (9): 35-38.
- 2.
- Kjelle, M. M. 2003. Raymond Damadian and the Develop-3. ment of MRI (Unlocking the Secrets of Science). Bear, DE: Mitchell Lane, 41.
- Dwyer, J. The Quirky Genius Who Is Changing Our World. Parade Magazine, October 10, 1993, 8-10.
- Meyers, M. A. 2012. Prize Fight: The Race and the Rivalry to Be the First in Science. New York: Palgrave Macmillan, 125. 6. Damadian, R. 1994. The Story of MRI. *The Saturday Eve*-
- ning Post. 266 (3): 55. Damadian, R. 1971. Tumor Detection by Nuclear Magnetic
- Resonance. Science. 171 (3976): 1151-1153. 8. Edelson, E. 1973. How Scientists Are Detecting Cancer with
- Supermagnets. Popular Science. 202 (3): 99.
- Kleinfield, S. 1985. A Machine Called Indomitable: The Remarkable Story of a Scientist's Inspiration, Invention, and Medical Breakthrough. New York: Times Books. 149.
   Raymond V. Damadian. Fact sheet of The Franklin Insti-
- tute. Posted on www.fi.edu., April 2004 11. Chuvala, B. 1996. Images of the Body. Reflections of the
- Soul. Physician. 8 (3): 4-7. 12. Hiebert, R. Darwin Wins Friends in Rome. British Colum-
- bia Report, November 11, 1996, 30-31
- Damadian, R. Discovering the MRI Scanner. *Guideposts*, January 1999, 23.
- 14. Chuvala, Images of the Body, 7.
- 15. Damadian, R. and L. Leech. 2015. Gifted Mind: The Dr. Raymond Damadian Story, Inventor of the MRI. Green Forest, AR: Master Books.
- 16. Beyak, T. Is It Possible to be a World-Class Scientist and a Cre-ationist? Abbotsford & Mission News, September 21, 1996.

Dr. Bergman is an Adjunct Associate Professor at the University of Toledo Medical School in Ohio.



### A SECRET WEAPON FOR APOLOGETICS



ecret weapons provide special advantages. Imagine the value of a bazooka in the hands of a skillful soldier hiding in the bushes when an enemy tank lumbers by. Or, consider the smug confidence of a machine gunner nested inside a concrete pillbox, until he discovers (in a surprising flash) that a nearby adversary has a flamethrower aimed at his pillbox's open window. Secret weapons are useful in both small-scale skirmishes and larger-scale battles.

OLOGETICS

The same can be true when defending the biblical faith, but the Christian's "weapons" are different (2 Corinthians 10:3-4). Providing God's truth routinely attracts conflicts (2 Timothy 3:8). The reality of spiritual warfare is not in itself surprising, because Scripture informs us that we are tasked with earnestly contending for the faith (Ephesians 6:12-19; Jude 1:3-4). Accordingly, the usefulness of secret weapons is no surprise to those who share and defend the faith. One secret apologetic weapon, that has little to do with fancy academic debate techniques, is a genuine, caring respect for the doubting inquirer.<sup>1</sup>

Peter identifies this kind of respect as "meekness" (1 Peter 3:15). This means that apologetics-practicing Christians need to impart more than just true information when correcting errors and clarifying confusing controversies. Accurate answers need delivery with special handling so that the truth is accepted more easily: "They will care how much you know *if* they know how much you care."<sup>2</sup> Furthermore, even if the care and respect go under-appreciated, it is nonetheless a Christian's obligation to show it anyway, because God has told us to do so (1 Peter 3:15; Galatians 6:1).

For another example, consider the situation of a college student who was unbiblical in his thinking on many topics yet was *not* a Bible-criticizing scoffer. This student discussed apologetics-related topics with an older student, Carl Fahrner, who attended Virginia Tech. Carl instantly recognized flaws in the inquirer's worldview but did not use a shotgun-like approach to blast his errors. Rather, he used a kind and careful approach like this:

"I can see you have thought a lot about this—your theory does explain some things, and it makes sense of some facts. However, that explanation doesn't fit these other facts" (which he would then detail). "Also, as fits the big picture, that explanation cannot be right, because it conflicts with parts of the Bible" (which he would then detail), "which I know is always right. Jesus Himself said that the Bible was right on every 'jot and tittle'—and He would know! So, although I see why you think that way, I also have good reason for not accepting that explanation."<sup>3</sup>

Carl was friendly and diplomatic, yet he stuck with the truth—a true mentor correcting the younger college student with respect and care. Applying 1 Peter 3:15, Carl was role-modeling meekness in apologetics rooted in the doxological attitude commanded in 1 Peter 3:15a.<sup>4</sup> The practice of showing respect and dignity when responding to a sincere inquirer<sup>5</sup> might seem like a humble "weapon," yet what seems "weak" or "foolish" to worldly eyes often contains God's power, wisdom, and blessing (1 Corinthians 1:25-31). The secret weapon is speaking the truth in love (Ephesians 4:15). ●

#### References

- Jesus Himself role-modeled this caring response to doubting Thomas (John 20:19-29). Another secret weapon for apologetics-related contexts is prayer (Colossians 4:3; Ephesians 6:17-19).
- Quoting Chaplain Bob Webel. Why is the secret weapon of showing genuine respect so effective? Consider this observation from a public schoolteacher who teaches students from rough neighborhoods: "Kids who are loved at home come to school to learn, but kids who don't get love at home try to find it at school."
- 3. Carl Fahrner also advised the younger student that Virginia Tech had been blessed a few years prior by a Christian genius—an engineering science professor, Dr. Henry M. Morris—who had proven in many details how accurate the Bible is on scientific matters, especially regarding the hydrology aspects of the Genesis Flood.
- For more about this attitude, see Johnson, J. J. S. 2014. Apologetics: Reactive, Proactive, or Both? Acts & Facts. 43 (4): 19.
- 5. It is needful to distinguish between sincere inquirers and bellicose scoffers. Sincere inquirers have doubts and questions that deserve to be understood and answered with care. However, scoffers resist truth, although they (like King Herod) can pretend to care about it (Matthew 2:7-12). Thus, the challenges, criticisms, and accusations of scoffere dearma succint refitting.

ers deserve succinct refutations but not prolonged investments of time and other resources (Proverbs 26:4-5; Mark 6:11).

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



EWARDSHIP

### **ICR's Tychicus**

ychicus is an obscure figure in the New Testament, mentioned only five times—four times by the apostle Paul and once in the book of Acts in association with Paul's missionary journeys. Luke lists Tychicus among those who traveled with Paul from Troas to Jerusalem (Acts 20:4-6), most likely as part of the entourage of believers entrusted with delivering the substantial gift offering collected among the Gentile churches for the poor believers in Judea (1 Corinthians 16:1; 2 Corinthians 8-9). While under house arrest in Rome, Paul commissioned Tychicus to

personally deliver his epistles to the believers in Ephesus and Colossae (Ephesians 6:21; Colossians 4:7), and later he is mentioned as one of two possible men to temporarily relieve Titus from his ministry on the island of Crete (Titus 3:12). And in his final letter

written shortly before his martyrdom, Paul reveals to his young protégé Timothy that Tychicus has once again been dispatched to Ephesus (2 Timothy 4:12).

But among all of Paul's references, his introduction of Tychicus to the believers in Colossae is perhaps the most significant. Bear in mind that the epistle to the Colossians seems to have been written primarily to correct heresies that developed there and were spreading to other churches. Paul, imprisoned in Rome and unable to attend to these serious matters personally, needed a trusted aid whom he could send in his stead-and Tychicus was just the man for the job. Paul describes him as a "beloved brother, faithful minister, and fellow servant in the Lord" whom he is sending to "tell you all the news about me" for the express purpose that "he may know your circumstances and comfort your hearts" (Colossians 4:7-8). Tychicus was no mere courier but a valued colleague who knew Paul and his ministry intimately. Paul trusted Tychicus not only to encourage the believers but to do so

Paul trusted Tychicus not only to encourage the believers, but to do so with accurate information, sound doctrine, and a discerning heart.

**Chas Morse** 

with accurate information, sound doctrine, and a discerning heart.

What does Tychicus have to do with ICR? In many ways, Tychicus' character and abilities are reflected in Chas Morse, ICR's new Director of Donor Development. Like Tychicus with Paul, Chas has been engaged with ICR since our early days and knows our ministry intimately. Chas' father was involved with ICR during the 1970s and often enlisted young Chas to operate the slide projector for his speaking engagements.<sup>1</sup> Later, Chas was a student under ICR's founder Dr. Henry Morris at Christian Heritage College, and dur-

> ing the final four years of his 26-year career in the Air Force, Chas served on ICR's board of trustees. Upon retiring as a Lt. Colonel, he resigned his board position in 2010 to work full-time with ICR as our Director of Church and Seminar Ministries and has

been instrumental in many successful events all over the nation. His depth of experience, effervescent personality, and passionate enthusiasm for the ICR ministry are a perfect fit for his new role with ICR.

We have long desired to connect with our co-laborers on a deeper level, and Chas is the right man for the job. Chas has been asked to meet with our longtime supporters to personally thank them for their past support, get to know them personally, and share behindthe-scenes information on ICR's vision for the future. And like Tychicus, Chas is truly a "beloved brother, faithful minister, and fellow servant in the Lord" whose intimate knowledge of ICR's ministry will truly encourage the hearts of those fortunate enough to visit with him. If you get a call from Chas, please make every effort to meet him. You'll be glad you did. ●

Reference

1. Charles C. "Chas" Morse. 2014. Conversion of a Rocket Man: Charles P. Morse. Acts & Facts. 43 (7): 20.

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



CONSIDER SUPPORTING GALATIANS 6:9-10

#### Through

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

### Now \$7.99 each!

# DVD SALE!



### NEW! That's a Fact

Reg. \$9.99, now \$7.99 – DTAF Sixteen That's a Fact video shorts packaged together in one educational DVD. Episodes include Throwing a Strike, Language Families, Dinosaurs and Humans, Our Young Universe, Extraterrestrial Life, Dinosaurs on Noah's Ark?, Echolocation, and more (28 minutes).



### NEW!

**The Human Body: Divine Engineering** Dr. Randy Guliuzza Reg. \$9.99, now \$7.99 – DTHBDE Evolutionists say any appearance of design in nature is just an illusion. But how does that stack up to reality? Dr. Randy Guliuzza, a professional engineer and medical doctor, explores the wonders of the human hand (about 60 minutes).



### NEW!

### The Ice Age: Real and Recent

Dr. Jake Hebert Reg. \$9.99, now \$7.99 – DTIARAR

Does an ice age fit with biblical history? ICR's Dr. Jake Hebert explains how the assumption of millions of years is built into secular dating methods. The scientific evidence shows that while secular science fails to explain the Ice Age, the Bible provides real answers (about 60 minutes).



### **The Secret Code of Creation** Dr. Jason Lisle

Reg. \$9.99, now \$7.99 – DTSCOC Dr. Jason Lisle shows how fractals—types of structures that repeat infinitely in smaller and smaller scales—couldn't possibly have resulted from evolution. Fractals' intricacy reflects the infinitely powerful mind of the Creator (48 minutes).



### Dinosaurs and Man: Five Clues to Dinosaur Origins

Brian Thomas

Reg. \$9.99, now \$7.99 – DDAMFCTDO In this update to *What You Haven't Been Told About Dinosaurs*, ICR's Brian Thomas provides five clues from rocks, fossils, ancient documents, and Scripture itself that point to the recent creation and co-existence of dinosaurs and man (about 60 minutes).



HUMAN DESIGN:

### Astronomy Reveals Creation

Dr. Jason Lisle Reg. \$9.99, now \$7.99 - DARC

Many people use astronomy to challenge Scripture, but what do the heavens actually reveal? Dr. Jason Lisle explores five "secrets of the cosmos" to confirm the Bible is right when it talks about astronomy, the age of the universe, the uniqueness of Earth, and the issue of distant starlight (62 minutes).

### Human Design: The Making of a Baby

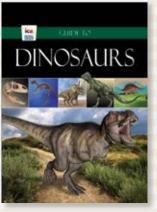
Dr. Randy Guliuzza Reg. \$9.99, now \$7.99 – DHDTMOAB Dr. Randy Guliuzza explores the complexities of human reproduction to demonstrate that life's integrated biological systems couldn't possibly have evolved (65 minutes).

Please add shipping and handling to all orders. Prices good through May 30, 2015.

To order, visit ICR.org/store or call 800.628.7640.

### LETTERS TO THE EDITOR

My two-year-old niece from Florida is painfully shy, especially around strangers. We were visiting family—my sister, her kids, and my parents. And my niece, true to form, was staying as far from me as possible, hiding behind the safety of her mother. But when I pulled ICR's *Guide to Dinosaurs* out of my bag, she ran straight to me, climbed onto



the sofa, and began in wide-eyed curiosity pointing out the many dinosaurs pictured in your book. "Dinosaur," she said over and over with a smile on her face, as I flipped through the pages with her. That little book made me her instant friend. Bless you, ICR.

— J.D.

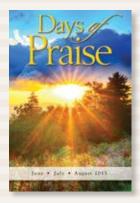


Thank you for sending the [Unlocking the Mysteries of Genesis] DVDs so promptly. I am showing them to our small church-centered Bible institute (14 students). They are tremendous. I teach Genesis the first hour and a half and show the videos the last half hour. They reinforce what I taught. They have given me a better grasp of God's world as a whole and our purpose and destiny. I am using Dr. Henry M. Morris' *The Genesis Record* as a guideline. Unlocking the Mysteries of Genesis is very professional. The Institute for Creation Research has been a great help in my personal life and ministry down through the years since Dr. Morris wrote *The Genesis Flood*. I am sure he is still reaping rewards from his many books and lectures.

-G.T.

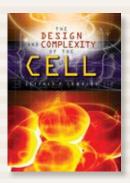
I just wanted to drop a note and say thank you for today's *Days of Praise* devotional "Another Jesus."...I really wish people...would learn to look at people and see them as Jesus sees them. I have found [while] working for The Salvation Army Emergency Disaster Services over the past few years what I have come to believe is the true meaning of worshiping and following Jesus.

In May 2011, I deployed to Hackleburg and Phil Campbell, Alabama, as part of The Salvation Army's tornado relief effort, where I interviewed and assisted



survivors of that deadly event. One day an elderly lady came into the FEMA tent with a couple of family members for assistance. She had lost children and grandchildren to the tornado, and her husband was in the hospital in critical condition. After assisting her the best we could, three members of our Salvation Army Ladies Auxiliary who were working as disaster workers asked if they could pray with her. There in that FEMA Disaster Assistance Center tent, this lady, in her grief and pain, was surrounded and lifted up with heartfelt Spiritled prayer. It was at that moment, a moment in time, that I caught a glimpse of what Sacred and Holy and Glory truly are. Everything seemed to come together that this was the most sacred of worship, being at the very center of God's will, to be there with those in pain, in Jesus name. Words are wholly inadequate to describe what I was privileged to catch the briefest glimpse of. It's been nearly four years since, and I'm still moved to tears to write of it.

— J.O.



When I saw the article "Evolution of a Creation Scientist" in [the March 2015] Acts & Facts, I wanted to tell you that when The Design and Complexity of the Cell came out it was an answer to prayer! My brotherin-law is an engineer who has rigorously explored medical engineering. So, when it came time to homeschool biology, I asked

his advice. And he suggested that since biology is so broad, I should focus on the cell and human physiology. The very day I was planning and asking the Lord what to do, the first ad came in the mail (2012) and we ordered it. Your book was a real blessing. Thank you and all of those at ICR.

- Mom in Kentucky

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.

### **Homeschool Resources** for All Ages!



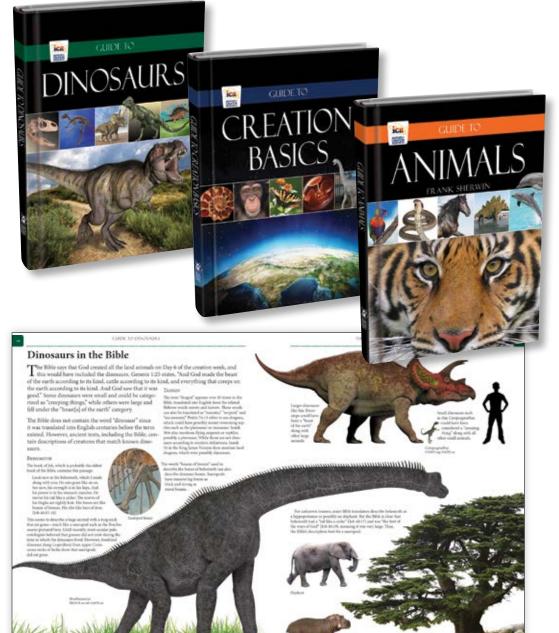
P. O. Box 59029, Dallas, TX 75229 www.icr.org

### Buy all Three "Guide to" books *for \$33.00!* SGTCBB – Hardcover

Perfect for homeschoolers or anyone who wants a detailed, easily understood science resource

### Save over \$26!

Plus shipping and handling Special price for a limited time only



### Guide to Dinosaurs

Reg. \$19.99 - BGTD – Hardcover Dinosaurs were amazing creatures, but there are still many questions. How do they fit with the Bible? Are they really millions of years old? Were dinosaurs on the Ark? Why are they extinct today? Examine the evidence and discover the real dinosaur story.

### *Guide to Creation Basics*

Reg. \$19.99 - BGTCB - Hardcover This 120-page guide—authored by ICR scientists and scholars—is filled with full-color illustrations and loaded with information from science, history, and the Bible. It shows God's ingenuity, power, and care in creating our world. This is the one book you need to teach creation!

### *Guide to Animals*

Reg. \$19.99 - BGTA - Hardcover How do fish breathe and birds fly? Why do some animals migrate and others hibernate? And what happened to the dinosaurs and other extinct animals? This beautiful hardcover edition is loaded with full-color illustrations, fun facts, and the science about your favorite animals!

To order, call 800.628.7640 or visit ICR.org/store Prices good through May 30, 2015