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Best Laid Plans



ave you ever experienced the disappointment of changed plans? You carefully arrange the details, anticipate the event, and look forward to the fulfillment of your expectations. But then the long-awaited occasion doesn't happen the way you envisioned. Circumstances get in the way. In these kinds of situations, my mother (an English major) borrowed a phrase from classic literature: "Ah, the best laid plans."

We've all experienced the frustration of having our hopes dashed—and if you've read your Bible, you've probably noticed that our predecessors in the faith also experienced setbacks to their plans, dreams, and visions. Think of Joseph. He dreamed of great things, yet he ended up in a prison. David planned to build a glorious temple for his Lord, a good plan, but God said no; God chose Solomon for that task. And there's Jonah. Dear Jonah, who went to great lengths to avoid God's command. Jonah planned to *not* be in Nineveh, and we all know how that turned out. Paul often mentioned his desire to visit fellow believers in other lands, but some of those wishes never came to pass. None of us can escape the uncertainties of life. We all face the possible disruption of our best laid plans.

In our feature article, "Casting the Vision," ICR editor Michael Stamp shares the stories of three ICR scientists and leaders (pages 5-7). We see how paleobiochemist Dr. Brian Thomas, founder Dr. Henry M. Morris, and President and Chief Operating Officer Dr. Randy Guliuzza had visions for the future. They had strategies to get to their final goals, but they each encountered changes to their plans and discovered that God had a better blueprint for their lives.

As other ICR scientists have found

in their journeys along the way to ICR, "God's hand has been in all their circumstances, sovereignly putting each piece in place" (page 5). If physicist Dr. Jake Hebert had gone another direction in his scientific endeavors, would we have his insights about ice core sample problems and climate change discrepancies? We wouldn't have the valuable research on Flood sedimentary layers had geologist Dr. Tim Clarey remained in the oil industry. If geneticist Dr. Jeff Tomkins were still a faculty member in the Department of Genetics and Biochemistry at Clemson University, we might not see the inaccuracies in secular human-chimp DNA comparisons. And since leaving his position as Radiation Physicist at Fermi National Accelerator Laboratory, nuclear physicist Dr. Vernon Cupps has provided invaluable information about the problems with radiometric dating.

Plans change, and aren't you glad? We can be sure that when God changes our plans, He has a better one. We can have confidence that He is in control and every detail of His design for us is carefully orchestrated to His specifications. Through the disruption of our original ambitions, someone is helped, we learn something new, our character is transformed, or maybe we experience unexpected blessing. And through it all, God gets the glory in unforeseen ways. When God intervenes in our lives, we can be certain that even if we don't understand the timing, the how, or the why, He really does intend for us to experience His best laid plans.

Jayme Durant

Jayme Durant Executive Editor

CASHNG THE

MICHAEL STAMP

article highlights

- Fifty years ago, God raised up the Institute for Creation Research to help open people's eyes to the truth of biblical creation.
- Like ICR's founder, many creation scientists have struggled and been ridiculed as naïve for interpreting Genesis literally.
- But through adversity, God's hand

has provided for and placed these men and women exactly where He wants them.

 ICR's vision and goal remain the same. We seek to proclaim the whole Word of God, lift up our Creator the Lord Jesus Christ, and teach the next generation that science profoundly confirms creation.

ach workday morning, the Institute for Creation Research staff meets for a time of devotion and prayer. Dr. Brian Thomas recently led our group and related how God's hand and perfect timing played out in his journey to ICR. In the early 2000s, Dr. Thomas was a biotechnology professor at a Christian university. In 2007, he was told by the dean of the science department that his contract wouldn't be renewed for the following academic year—he was let go. That was quite a serious blow to this father of five.

Taking a Stand

Why this sudden turn of events at the university? It was almost certainly because Dr. Thomas held to biblical creation. He took a stand to uphold the whole Word of God. Years earlier, while Dr. Thomas was still an evolutionist, God had revealed to him a clearer understanding of both Scripture and science and how they fit together, which allowed him to see an aspect of truth many others don't.¹ From then on, he wouldn't back down from proclaiming it. And people's eyes were opened.

After his dismissal, Dr. Thomas looked for other teaching positions, filling out countless applications and even considering changing careers to a completely different field. Through a divine appointment, a friend mentioned that ICR had a position open for a science writer. Dr. Thomas interviewed, was hired, and began working at ICR right after receiving his last paycheck from the university. Our God provides.

Other creation scientists have had sim-

ilar experiences when they took a stand—job loss, advancement opportunities curtailed, even ridicule from fellow Christians—and others gave up lucrative careers to advance biblical creation. But God's hand has been in all their circumstances, sovereignly putting each piece in place. And people's eyes have been opened.

Celebrating 50 Years

The Institute for Creation Research was formed a half-century ago by Dr. Henry M. Morris, who envisioned a creation science ministry founded first and foremost on the inspired Word of God from Genesis to Revelation.

Dr. Morris' experience with standing for biblical creation was much like those of creation scientists today. He was appointed

feature

the Civil Engineering Department head at Virginia Polytechnic Institute in 1957 and published his groundbreaking book The Genesis Flood with Dr. John Whitcomb in 1961. Soon afterward, as his notoriety grew as an outspoken creationist, his position was threatened. But he continued to take a stand-he would not remain silent. By 1969, Dr. Morris was told he would no longer be the head of the department. That event was a turning point that led him to found ICR the next year. Dr. Morris hadn't planned this journey, but God had it in mind all along and led and equipped him through every step. People's eyes were opened, and the modern biblical creation movement flourished.

Dr. Morris penned his ongoing vision for his organization in a July 1995 Acts & Facts article commemorating ICR's 25th anniversary: "[A] key purpose of ICR is to bring the field of education-and then our whole world insofar as possible-back to the foundational truth of special creation and primeval history as revealed first in Genesis and further emphasized throughout the Bible." He went on the say that "the young people in our colleges and universities will probably be the leaders of tomorrow in every field of human activity. There can be no more vital goal than to provide as many of them as possible with a solid biblical, Christian, creationist education."2

The truth of creation is often dismissed because evolution is so entrenched and widespread among Christians and Christian institutions that believers often side with what they see as science rather than the Bible's clear revelation. ICR seeks to enlighten learners of all ages and show them that science and the Genesis narrative completely align.

When sharing his career story, Dr. Thomas stated, "ICR exists so people can hear the alternative to what they are being told about origins; for example, the story that they came from primates. But good science agrees with Adam and Eve." We exist to demonstrate evolution's scientific failingsand the logical fallacies some scientists use to defend it-and replace them with the limitless evidence for biblical creation.

The Great Opportunity

ICR's new president, Dr. Randy Guliuzza, has degrees in engineering, medicine, and public health, as well as theology. He recently said, "My view of science has probably come down, realizing that it can be abused,

and my view of the Bible has gone up, recognizing that it really, really is accurate, and it is so full of wisdom that I just hold it in awe and respect."3

He also sees great opportunity in ICR's future and wants to encourage a new creation movement:

I would love to see ICR become a leader in helping pastors and Christian leaders see biology in a completely different light, in a way that they have never seen it before, and that it will build their faith and strengthen their belief in the Bible as authoritative and accurate. And that will help them to lead their people to completely trust it and to obey it....If we can have ICR leading the way in a second creationist revival, and we're doing that by developing a solid theory of biological design, that would be a major accomplishment.3

Dr. Henry M. Morris' great idea, the one that got him dismissed and led to an even greater purpose, was based on how Earth's geology-its vast sedimentary layers-was shaped by Noah's Flood. He was a great scientist, writer, and speaker, and his message was clear, concise, compelling, and communicable.

Now, as others carry forward what he



— Henry M. Morris, Ph.D.

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(6)

started, the next area creationists must address is biology—life itself. Misleading evolutionary biology must be brought to light and countered with a design-based model and organism-focused approach in which creatures are seen as wholly active rather than passive—a model backed by the undeniable evidence of the intentional design of the Creator. Organisms are clearly engineered at the highest level to innately respond to and thrive in the environments in which they are found, and much of that evidence comes from *secular science*.

ICR will continue doing groundbreaking research, Lord willing, for the next 50 years as we have from the beginning, "interpreting the scientific data in the context of biblical revelation."² Our current research focuses on creatures' innate ability to adapt

OF CREATION RESEARCH

to environmental changes, global geological Flood evidence, the uniqueness of the human genome, the problems with radioisotope dating, discoveries of fossil tissues that can't be millions of years old, Ice Age and climate research, time dilation in deep space, light travel from distant stars, signs of youth in the solar system, historical and scholarly discoveries that match the Bible, and wherever else our research leads us.

Worth the Commitment

The scientific and historical case for biblical creation isn't simply strong—it's profound. Since the Christian faith is defendable from every angle, no one has to take off their "science cap" to be a believer. We at ICR are wholly committed to empirical science because each new discovery reveals the glory of the Creator as it's displayed in His creation.

> Our vision is the same as it was in 1970—we seek to lift up Christ Jesus as Creator and Redeemer to an evermultiplying audience. Our goal is the same—to educate the

The scientific and historical case for biblical creation isn't simply strong—it's profound.

next generation and demonstrate how the Bible and science confirm each other. We are surrounded by overwhelming evidence of design, and we seek to continue to open people's eyes to God's glorious creation and liberate their thinking.

This message isn't new...it's as old as creation itself. There's a great opportunity before us, and it's worth the commitment of time, resources, struggle, and prayer to reach and educate a new generation. Som *References*

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Mr. Stamp is an editor at the Institute for Creation Research.



The doctrine of creation is the basis for every important doctrine that we have in the Bible. — Dr. Randy Guliuzza





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research

highlights ICR Paleoclimate **Research Continues**

ecause the Genesis Flood caused the Ice Age,1 studies of past climate, or paleoclimatology, have long been a focus of the Institute for Creation Research's research programs. One of my tasks is to build upon the Ice Age work of atmospheric scientist Dr. Larry Vardiman,²⁻⁴ who retired from ICR in 2012.⁵

Since 2016, ICR publications have revealed serious problems with an iconic argument for the secular Ice Age theory.⁶ In an earlier column, I discussed a new phase of research: studying the pre-Flood climate, particularly the possible absence of rain (Genesis 2:5-6).7 Rain requires clouds, and clouds require droplets of water. In order for cloud droplets to form, suitable "seeds" for droplet formationcalled cloud condensation nuclei (CCNs)-must be present in sufficient numbers in the atmosphere. Yet, some sources of CCNs could reasonably be expected to be absent or greatly diminished in the pre-Flood world. These include dust particles from dust storms, volcanic aerosols, and significant quantities of man-made pollutants. Perhaps a dramatically lower number of pre-Flood CCNs might have inhibited rain in the pre-Fall and pre-Flood world. I still think this idea may have merit, but discussions with other creation researchers revealed that the issue is more complicated than I originally thought. For that reason, this particular project has been tabled for now.

Meanwhile, I am doing more research on the deep ice cores of Greenland and Antarctica. In 1994, Dr. Vardiman published a onedimensional, young-earth model for the rapid formation of thick ice sheets, and I am building upon his work.8 I am particularly interested in estimating the true thicknesses of annual layers in the deep ice cores, using simple ice-flow computer models and an assumption of high post-Flood ice accumulation rates. I have already extended Dr. Vardiman's work and submitted a paper for publication, and I hope to expand on his efforts even further.

In the creation model, annual layers in ice cores are much thicker on average than in secular models. Obtaining better estimates of The Noahic Flood occurred around 4,500 years ago, and its effects caused the Ice Age shortly afterward.

- Paleoclimatology is the study of Earth's past climate, and ICR has a longstanding commitment to this field.
- The creation model better explains the Ice Age than secular models do.
- ICR will soon publish a book on Dr. Hebert's research as part of its In-Depth Science series.

annual-layer thicknesses may enable us to test predictions made by the creation and secular models. In some ways, the creation model already makes better sense of the ice sheet data.9

In the meantime, evidence for the biblical Ice Age model continues to accumulate,10 and ICR continues to produce resources addressing questions regarding climate change and the Bible.¹¹ In fact, I'm currently working on a book dealing with climate change from a biblical perspective as part of ICR's In-Depth Science series. The book will show that the Bible provides the best framework for understanding Earth's history, including past climate change, and it will explain how one's origin beliefs dramatically influence one's views of global warming. I argue that climate alarmism is largely rooted in a denial of Genesis history.

As ICR celebrates 50 years of fruitful ministry, we remember that none of this would be possible without God's faithful provision through you, our donors. Thank you for your generosity that has made this research possible. 🖄

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Lava Flows Disqualify Lake Spillover Canyon Theory

article highlights

- Two creationist theories vie to explain how and when Grand Canyon was carved: the lake spillover theory and the receding Flood theory.
- Ice Age lava flows in Grand Canyon show it was already carved when the Ice Age began.
- Telltale terraces are missing from the shorelines of the huge lakes that supposedly drained and carved Grand Canyon.
- The receding Flood theory best fits the geological data.

here has been considerable debate among scientists over the origin of Grand Canyon. We all agree it was formed by the removal of some 1,000 cubic miles of sediment and rock, leaving a canyon 277 miles long and four to eighteen miles wide with a depth of over 6,000 feet in some locations. Many secular geologists claim the canyon formed in the last six million years or so by slow erosion.¹ Creation geologists believe the evidence supports rapid erosion from vast amounts of water over a short time frame—carving Grand Canyon just several thousand years ago.

But even creation geologists differ in their interpretation of the source of water that carved the canyon. Was the water from temporarily dammed lakes that spilled out catastrophically a few hundred years after the Flood, or was it carved a bit earlier by the receding water of the Flood itself?

Problems with the Lake Spillover Hypothesis

The lake spillover hypothesis became popular in the 1990s when creation scientists used surface topography to construct large hypothetical lakes just to the east of present-day Grand Canyon (Figure 1).^{2,3} This view holds that Grand Canyon was formed in the post-Flood period by the sudden breaching of two presumably dammed lakes: Hopi Lake and Grand Lake (alternatively called Canyonlands Lake). Theory proponents believe they formed a few hundred years after the Flood during the Ice Age or shortly thereafter.





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The lakes potentially could have held over 3,000 cubic miles of water, roughly equivalent to three times the volume in Lake Michigan.¹ The explanation for the breach varies, but advocates claim a catastrophic water release, or spillover, carved Grand Canyon.

In previous works, I have pointed out the lack of physical evidence for these hypothetical lakes.^{4,5} There is virtually no support for the northernmost lake, Canyonlands Lake, and there are no wave-cut lake terraces or strand lines, as would be expected, around the rim of either of these supposed lakes. In contrast, we see clear, wave-cut terraces around the edges of all other large Ice Age lakes, including Lake Bonneville, which has largely evaporated to become Great Salt Lake today. Lake Bonneville's terraces and strand lines are clearly seen along the front of the Wasatch Range and elsewhere, marking its former extent.^{4,5}

We also see evidence of former Ice Age lake levels marked by clear, wave-cut terraces around the Great Lakes region. There are two



Figure 2. A view of old Fort Mackinac showing the wave-cut cliff representing the Ice Age Nipissing lake level Image credit: Tim Clarey

such strand lines on Mackinac Island alone—the Nipissing and Algonquin terraces—representing fluctuating water levels during the Ice Age (Figure 2).

John Wyatt, who spent about 40 years in Africa working on hydroelectric projects, had this to say when asked if he observed the formation of wave-cut lake terraces on reservoirs and how long they took to form:

Yes, I have frequently seen wave-cut ledges on lakes and reservoirs. A huge number of factors are involved including prevailing winds, storms, geology and long-term/changing water levels, but I have seen them begin to appear both within a few days and after much longer periods of relative stability.⁶

The fact remains that there are no wave-cut terraces found around the rim of either Canyonlands Lake or Hopi Lake. However, there are some sedimentary deposits that have been interpreted as water-deposited lake sediments in parts of the hypothetical Hopi Lake, known as the Bidahochi Formation.⁴ But this unit has been found to be too old to be an Ice Age lake deposit and is more likely a remnant from the receding phase of the Flood.^{1,4}

Learning from Recent Dam Catastrophes

I recently returned from Michigan where I visited the site of two recent dam failures that catastrophically drained both Wixom and Sanford Lakes. These lakes were created by dams on the Tittabawassee River. The upstream Wixom Lake had a normal capacity of about 36,000 acre-feet (1.55 billion cubic feet), a maximum depth of 40 feet, and about 84 miles of shoreline.⁷ The downstream Sanford Lake had a lake volume of 13,900 acre-feet (600 million cubic feet), a maximum depth of 26 feet, and a shoreline of about 35 miles.⁸ Both the Edenville dam on Wixom Lake and the Sanford dam were completed in 1925, creating two reservoirs that existed for nearly 100 years.^{9,10}

After a heavy spring rainstorm dumped four to seven inches across the region, the collapse of the Edenville dam sent the water of Wixom Lake rushing toward Sanford Lake, immediately downstream. This massive volume of water (21.5 billion gallons) emptied in one hour at rates of 60,000 cubic feet per second and overwhelmed



Figure 3. View of the former lakebed of Sanford Lake, Michigan. The wave-cut terrace is visible below the houses.

the Sanford dam, pouring the volume of both reservoirs into the Tittabawassee River on May 19–20, 2020. This flooded downstream cities like Midland, Michigan, forcing 10,000 people to flee their homes.¹¹ Although no canyon was carved by this disaster, the emptied lakes revealed some secrets. As I examined the former Sanford Lake, I noticed a well-defined wave-cut step or terrace around the edge of the former lakebed (Figure 3). The reservoirs had indeed carved a lake terrace around the rim of the lake marking the stable water level prior to its rapid drainage.

Lake terraces and lake strand lines nearly always form if a large lake exists for any significant amount of time. But the advocates of the spillover hypothesis offer no explanation for the lack of lake terraces around their proposed lakes. If these lakes really existed, there should be observable terraces. Merely drawing a line along a topographic contour doesn't create real bodies of water.

Ice Age Lava Flows Drain the Spillover Hypothesis

Another major and nearly insurmountable problem with the spillover hypothesis involves timing. During the Ice Age, there were over 150 lava flows that poured down the walls of Grand Canyon from volcanism on Uinkaret Plateau.¹² (See Figure 4.) These flows demonstrate that the canyon already existed either prior to the Ice Age or very early in the Ice Age because the lavas poured down over the carved canyon walls. At a minimum, the 150 lava flows severely limit the time available for the lakes to build up the necessary 3,000 cubic miles of water needed to carve the vast canyon. There is simply not enough time between the canyon being carved, the lava flows pouring down the sides, and the lakes building up enough water to make the spillover hypothesis viable. When did the presumed Hopi and Canyonlands Lakes fill with water if not during the Ice Age, when the lava flows dictate the canyon was already in existence? These lava flows demonstrate the near impossibility of a spillover formation for Grand Canyon. The parent cannot be born before the child.



Figure 4. One of the more than 150 Ice Age lava flows that poured over the walls of Grand Canyon Image credit: Tim Clarey

Receding Flood Carved Grand Canyon and Others

Water follows the easiest path. Receding floodwater would naturally have followed the cracks and fractures in the freshly deposited and uplifted Flood sediments of the Colorado Plateau. The water draining off the Colorado Plateau would have flowed westerly toward the Pacific Ocean. Rapid uplift and surface drainage of receding floodwater provide both the path and the necessary volume of water to quickly carve out Grand Canyon. And this process would have concluded prior to the Ice Age, eliminating any timing conflicts with the canyon formation and the later lava flows originating on the Uinkaret Plateau. No hypothetical lakes are necessary as a water source in this explanation.

In addition, two other large canyons that formed in Greenland and Antarctica are bigger or similar in size to Grand Canyon. The Greenland canyon is as deep as Grand Canyon and 450 miles in length.¹³ It was not formed by the scouring of the current ice sheet but is older, going back to the time of Pliocene deposition just before the Ice Age began and formed late in the receding phase of the Flood.¹³ Recently discovered Denman Canyon in Antarctica is 62 miles long and actually twice as deep as Grand Canyon.¹⁴ It also appears to have had its beginnings prior to the Ice Age during the receding phase of the Flood. In the United States, other large canyons also formed during the receding phase of the Flood, such as Texas' Palo Duro Canyon. But it's not as deep as Grand Canyon and formed from runoff that flowed eastward away from the uplifted Rocky Mountains late in the Flood.¹⁵ Massive canyons on multiple continents are a global phenomenon. Common global features require a common global explanation, and the receding phase of the Flood provides the perfect conditions to carve large canyons. The sheer volume of water that had to drain off the continents provides the water necessary to rapidly carve these canyons in a matter of weeks or a few months.

The N-Q Flood Boundary Eliminates Issues

Many earlier researchers had their hands tied because they believed the Flood ended at the end of the Cretaceous System (K-Pg, or Cretaceous-Paleogene). In this view, there was no large source of water available to carve Grand Canyon by the time of the Ice Age. These scientists had to envision the hypothetical lakes to provide sufficient water to carve the canyon.

However, if the boundary for the end of the Flood is correctly moved up to the top of the Pliocene (N-Q, or Neogene-Quaternary), as we demonstrated in a recent article,¹⁶ there is no lack of water and no timing problem. Grand Canyon was carved prior to the Ice Age during the receding phase of the Flood (upper Neogene Period). The later lava flows simply poured over the freshly carved canyon walls as we observe today. We can safely conclude that the spillover hypothesis is the wrong explanation for Grand Canyon. There never were any large lakes east of Grand Canyon during the Ice Age, nor were they necessary to carve the canyon. The receding floodwater had sufficient volume to do the job.

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



back to genesis

AN OLD FRIEND CAME HOME

ears ago, an attendee at an ICR Back to Genesis seminar approached me with a fossil he and his daughter had found while on a hike in Washington State. It was obviously petrified wood, which is common in many localities, and it seemed of no particular use in the creation/evolution forum. But its history and how they found the specimen was of great importance.

Petrified wood is often presented in classrooms as an example of great age—for

article highlights

- A hiker discovered a fossil stump in Washington State that turned out to be the end of a fence post only about a century old.
- This find shows that wood can petrify rapidly—it doesn't require millions of years.
- Artifacts like this one open people's eyes to how rapidly change can occur.

visible throughout the area—some only dormant—so all the conditions for rapid wood petrification were met.

This petrified fence stump served me well as an object lesson for rapid geologic processes. I used it as an example of a fossilized human artifact and have made good use of it in lectures, books and articles. It doesn't necessarily prove anything, for all honest scientists would admit wood can petrify quickly. But virtually every student



it obviously takes a long, long time to petrify wood, right? But knowledgeable geologists know better. They are aware that wood can petrify quite rapidly if buried in an area surrounded by hot volcanic ash. Ash contains silica, which is melted and mobilized by hot water. Over time, the buried wood soaks up the silica-rich water, which either surrounds each cell of wood or replaces it as the wood decays. This doesn't take millions and millions of years as is commonly claimed because it's known to happen rapidly if the conditions are right. In fact, petrifying wood can be accomplished in a laboratory where even "hardwood" floors or other objects can be petrified. It doesn't take long-just the right environment.

But this object was different. The man and his daughter unexpectedly found this wood in a row of shaped wood separated by several feet. It was obviously an object fashioned by humans for it consisted of only a portion of a trunk. This segment had been split from a tree around three feet in diameter. One could see on this six-inch stub where something had been attached probably barbed wire. The wood appeared to have been part of an old split-rail fence, the underground portion having been petrified while the aboveground part of the fence had rotted away.

The farm and farmer are gone, but this area has seen farmers for over a century. No record of a long-ago fence was found, but there is evidence of volcanism virtually everywhere in Washington State, including the presence of hot silica-rich water in the recent past. Moreover, extinct volcanoes are is brainwashed into accepting millions and millions of years of Earth history, and petrified wood is presented as a leading example. A fossil like this helps students who have been wrongly taught that it takes long ages to petrify wood to rethink ages of millions of years.

After I used the stump for several years, my friend asked for its return. His daughter wanted to use it for "show and tell" in her class. Now it has returned to ICR and has found additional use in science lectures. It continues to live out its history making a good impression and a good visual and memorable point to start the creation conversation.

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Dr. Morris is President Emeritus at the Institute for Creation Research.



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New Testament Upholds Created Kind Stasis

he opening chapter of Genesis makes a significant and scientifically accurate statement concerning the fixity of created kinds. During the creation week, we repeatedly read the phrase that every type of living thing was created "after its kind."

While there is observable variation within plant and animal kinds, we don't see one fundamental kind evolving into another, nor do we see any evidence of transitional forms in the fossil record. Interestingly, we see the Creator's upholding of fundamental, creation-based principles reaffirmed in the Greek text of the New Testament.

In Colossians 1:16-17, we are given insight into the Lord Jesus Christ as the Creator:

For by Him [Jesus] all things were created that are in heaven and that are on earth, visible and invisible...*All things were created through Him and for Him. And He is before all things, and in Him all things consist.* (emphasis added)

In the section of verse 16 stating "all things were created through Him and for Him," the word for "created" isn't a simple past tense form of the Greek verb to build or create, κτιζω (ktizó), but is inflected in the perfect tense as εκτισται (ektistai).¹ This perfect tense verbal form conveys a deeper and much richer meaning in the Greek than can be conveyed in a quick English translation. In fact, the perfect tense was often used intentionally by Greek New Testament authors to teach important theological truths. Greek verbs in the perfect tense describe an event that occurred in the past with ongoing effects or activity continuing into the present. Even more fascinating is that this verb is also inflected in the passive voice, meaning that an external agent (God) is involved in the continuing perfective action upon His creation. Taking these key verbal constructions into consideration, we can see that an ongoing effect or action being enforced by an external agent is implied, going as far back as the original creation event. This idea expressed in the last part of verse 16 is even more fully elaborated in the connected text of verse 17.

In verse 17, let's look at the phrase, "in Him all things consist" (one translation says "hold together"), specifically focusing on the Greek grammar behind the English word "consist." The lexical form of this verb is συνιστημι (*sunistémi*)² and is actually a combination of two other Greek verbs: σύν (*sun*), which means "with," "joined," or "gathered," and ἴστημι (*histemi*), which means to "set," "stand," or "establish."

Various forms of the verb συνιστημι (*sunistémi*) are used in the New Testament in 16 places.³ Most of the time, it's used to reflect humans commending or establishing themselves in some way. For example, the apostle Paul used it a number of times to



"commend" or establish himself to churches he addressed in his epistles. In several other places it is used to describe an active commending or establishing of God concerning some action directed toward His people (e.g., God commends His love toward us). Out of the 16 occurrences, the verb is used twice in the perfect tense. In one case, it's used as a participle (verbal adjective) referring to an early phase of the creation week in 2 Peter 3:5. This example refers to how God positioned the earth to be established part "out of the water" and part "in the water" obviously an act with an ongoing effect.

In Colossians 1:17, we find the other New Testament use of the perfect tense of the verb συνιστημι, where it is given as "συνεστηκεν" (*sunestéken*).⁴ By once again taking the key grammatical information of the perfect tense into consideration, we can see that *sunestéken* is a perfect description of God's sustaining activity of what He initiated in Genesis 1 during the creation week. In regard to *sunestéken* in verse 17, Greek grammarian A. T. Robertson noted that "the word repeats the statements in verse 16, especially that in the form *ektistai.*"⁵ Not only is Christ Jesus the Creator, but He has, over the course of the world, been actively sustaining and upholding His creation.

God created all plants and animals after their kind according to genetic boundaries He set in place in the beginning. While the kinds contained genetic variability and innate mechanisms of adaption to diversify and fill the earth, they weren't capable of



whether thrones or bidominions or iprincipalities or 2 powers. All things were created cthrough Him and for Him. 17 aAnd He is before all things, and in Him ball things consist. 18 And aHe is the head of the body.

> morphing into something entirely different as claimed by evolutionists. Furthermore, God did not simply step back after creation as some indifferent bystander as claimed by deists. We are told specifically in Colossians that everything is collectively upheld and sustained by our mighty, sovereign God from the past creation event to the present-despite the entrance of humanity's sin and the resultant curse it brought on creation (see Genesis 3 and Romans 8:18-22). In fact, we aren't left hanging in this section of Colossians; but further on in the chapter we are given the hope-filled promise in verse 20 of God's plan "by Him [Jesus] to reconcile all things to Himself...whether things on earth or things in heaven, having made peace through the blood of His cross" (emphasis added).

> God the Father, through His Son Jesus Christ, not only created the world and its biosphere but is sustaining and upholding it according to Genesis 1 principles and will soon reconcile this sin-cursed world to Himself.

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ICR zoologist Frank Sherwin conducts a hands-on science experiment



ICR physicist Dr. Jake Hebert signs one of his books



ICR Discovery Center for Science & Earth History 1830 Royal Lane Dallas, TX 75229 ICRdiscoverycenter.org



ICR's stunning new planetarium show Exploring Deep Space





Story times with ICR editor Christy Hardy and ICR media production engineer James Turner

Caricature artist Ronnie Smith at work

ICR DISCOVERY CENTER'S FIRST ANNIVERSARY CELEBRATION!

he ICR Discovery Center for Science & Earth History recently celebrated the first anniversary of its grand opening. To commemorate this milestone, the staff of our Dallas museum planned six days of fun and educational activities during the first week of September. They offered live science presentations, hands-on science experiments, scientist-led tours of the exhibit hall, opportunities to look through a solar telescope, story times for children, giveaways, and food trucks.

Local Christian radio personalities

from KLTY and Air1 broadcast live from the Discovery Center campus, and visitors experienced the premiere of ICR's new planetarium show, *Exploring Deep Space*. This in-depth film investigates the wonders of our solar system and the universe beyond, including blue stars, spiral galaxies, and mysterious black holes. Through this awe-inspiring presentation, viewers discover compelling evidence for a recently created universe.

We're so grateful for the many guests who visited the Discovery Center in its first year and hope to welcome even more in the coming year. If you haven't had a chance to visit, we hope you'll plan your trip soon. We're doing everything we can to make your time here safe, faith-building, and fun. Get details and tickets at **ICRdiscov**erycenter.org.

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Due to the Dallas County court order, guests age 10 and older must wear a mask inside the Discovery Center. Please visit **ICRdis-**coverycenter.org for ongoing updates. Set 2012

Why Mosquitoes Mosquitoes Mystery Solved

SCOTT ARLEDGE

t's late evening. You're relaxing on the backyard deck when suddenly they find you. Mosquitoes! One way they locate you is by tracking the carbon dioxide (CO_2) in your breath. Does this ability prove that mosquitoes were uniquely designed to use CO_2 to guide their way to a blood meal? Why else would they have this ability if not for parasitic purposes? Recent studies reveal there appears to be a good reason mosquitoes were equipped from the very beginning of creation to detect CO_2 .



- If creatures were originally created to be vegetarian, why do today's mosquitoes feed on our blood?
- The answer may lie in the fact that many flowers emit CO₂ that attracts mosquitoes and other pollenating insects. Flower nectar is also a primary food for mosquitoes.
- Some species of pre-Flood plants may have gone extinct, driving insects to change their feeding behavior to accommodate the new environment.
- It appears mosquitoes had the ability to feed on plants from the beginning of creation and altered their behavior to also feed on blood.

CO₂ from Flowers

Interestingly, many insects-not just mosquitoes-possess the ability to sense CO₂.¹⁻³ Why would insects that aren't seeking a blood meal have this ability? The answer remained elusive until new research revealed that flowers hold the key.4-6 Nectar-feeding moths, scientifically named Manduca sexta, prefer the Datura wrightii flower found in southwestern United States. This particular flower opens at dusk and withers by the following day. The researchers discovered that a substantial amount of CO₂ is released as the flower opens. The metabolic process of nectar production generates more than enough CO₂ for the moth to detect. The gas emission leads the moth to a very rewarding sugary meal, and the moth pollinates the flower-it's a win-win relationship. Less gas is released as production subsides, and the moth may use this as a cue to spend more time and energy on fresh flowers.4,7,8

Experiments were conducted with two surrogate flowers made of white cotton paper that emitted different levels of CO_2 with no additional reward. One emitted background levels of CO_2 , and the other emitted higher levels consistent with an opening flower. Ninety-five percent of the test moths went to the flower with the higher level of CO_2 .⁴

Heat Seekers

In addition to using CO₂, mosquitoes also draw on your body heat to track down you and your nutritious blood. They can sense your elevated thermal energy against a background ambient temperature with ease. However, this isn't unique to bloodfeeding insects. Many insects that don't feed on blood can detect heat-and flowers offer up another surprise. Floral thermogenesis describes the ability of plants to significantly raise flower temperature to increase plantpollinator success rates.^{5,6} Some plants can even increase flower temperature up to a spectacular 54°F above the surrounding air temperature!9 The Magnolia sprengeri flower was recently found to put out enough heat to attract pollinators, increase fragrance volatility, and reward pollinator beetles with overnight heat.5,9,10

What's This Got to Do with Mosquitoes?

To answer that, we first need to confirm that mosquitoes feed on nectar. Absolutely they do. Nectar is a primary food source in a mosquito diet. They also love rotting fruit and honeydew. But do they use their CO_2 and heat-seeking abilities to track down their plant-based food sources?

A 2019 study published in *Nature* evaluated that very question. The study authors concluded with a resounding "yes." Tansy flowers from Europe and Asia were used in both the field and lab to study the behavior of foraging mosquitoes. The ambient concentration of CO_2 around the tansy flower significantly increases at dusk. This, of course, coincides with the mosquitoes' evening feeding activity. The researchers then established that mosquitoes were using CO_2 as a cue to feed on nectar, just like the *Manduca* moths do.¹¹

Mosquitoes also use other floral cues to feed on nectar. Flowers look beautiful to humans, but the visual stimuli from the flower also motivates the mosquitos' foodseeking behavior.^{12,13} Just seeing a colorful flower can attract a hungry mosquito. Specific chemicals present on the plant and in nectar also engage the mosquitos' drive to locate floral resources.¹⁴ Remarkably, human skin and breath emit 9 of the 20 chemicals that mosquito-friendly flowers present.¹⁵

Common Tools

The abilities of insects to seek CO₂, heat, and various chemical compounds aren't traits specifically designed by God for bloodsucking parasites but rather are common tools found throughout the insect world. If insects in general have the ability to feed on flowers, then the mosquito probably has them for the same reason. Therefore, in the beginning when everything was good and all creatures were vegetarian (Genesis 1:29-30), mosquitoes already had the same tools they possess today. The curse didn't somehow add these powerful capabilities sometime afterward. This also means mosquitoes didn't evolve their tools. Like the large, sharp teeth God originally put into animal mouths for eating vegetation, new and destructive uses

Galaxy hybrid magnolia flowers for good animal traits like CO₂ sensors developed after sin. In other words, new body parts didn't arise after the curse—only their usage changed.

Extinction Helps Explain Why

Why then do mosquitoes use these tools to feed on blood in this fallen world? Extinction may hold a clue. An unknown multitude of plant kinds have gone extinct for many different reasons. The simple explanation is that the diet required for a mosquito to lay eggs is different from most insects' diets in order to get the proper nutrition during the larval stage. Today, plants on Earth don't offer easy access to the complete range of nutrients mosquitoes need to thrive. Extinct plants-those that grew before the Flood, for example-could have had flowers that produced heat, CO₂, volatile odors, and a nectar with all the proper nutrients for mosquito health.

Nectar found today consists of much more than just sugar. It's packed with amino acids and many other micronutrients.¹⁶ Before the Flood, nectar with the appropriate nutrients could have been sealed away in a plant's chamber that mosquito mouthparts would have pierced. After all, many plants today employ various mechanisms to ensure that only the planned bug species accesses its nectar. Some even use deadly toxins that are harmless only to the intended pollinator.¹⁷

When mosquitoes suffer from dehydration, they become very aggressive. It may seem counterintuitive, but some mosquitoborne diseases actually spread more readily during times of drought.¹⁸ As dehydration hits, a marked increase in blood-feeding occurs because mosquitoes become desperate. Mosquitoes are also pliable as to what they eat.^{18,19} Eventually, they detected and learned that the nutrients they need are in your blood. Basically, you are a walking, CO₂emitting, chemically volatile, heat-signaturepossessing "flower" with the right food.

Conclusion

The authors of the *Nature* study reached the same conclusion, stating that "haematophagy [blood-eating] of mosquitoes may have arisen from phytophagy [plant-eating]."¹¹ Essentially, they are saying that mosquitoes originally had all of these tools to feed exclusively on flowers and not blood. From their evolutionary perspective, somewhere along a path of millions of years mosquitoes began to feed on blood by employing the tools they had already been using on flowers.²⁰

Why does a lion eat a gazelle? The lion is simply using the tools it already had





to live. So, when you see a mosquito on the backyard deck, realize it's starving and just trying to survive with tools that it was created with—originally for a harmless purpose—from the very beginning. Some

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Quick and easy answers for the general science reader

creation q & a

: Leviathan: Legend, Croc, or Something Else?

In Job 41, God points Job's attention to a terrify-ing animal called leviathan. It's clear this was areal creature, but what was it?

Bible commentaries often call leviathan a crocodile. However, swords, hooks, and spears *can* pierce crocs but *not* leviathan, as verses 1 and 2 state. Author Peter Booker identifies the extinct super-croc *Sarcosuchus* [sahr-coe-SUE-cuss] as the biblical beast. It grew over 30 feet long.¹ Now, that's more like it.

ICR scientist Dr. Tim Clarey highlighted similarities between leviathan and a huge, amphibious theropod dinosaur called *Spinosaurus*.² This fits the Job 41 description of an enormous animal that took to the waters but also walked on the shore. But a new study puts the extinct North American alligator-like creature named *Deinosuchus* center stage.

Although *Spinosaurus* was longer, *Deinosuchus* specimens approached 40 feet. For perspective, "it was so enormous, almost everything in its habitat was on the menu."³

Job 41:15 says that "his rows of scales are his pride." The word

translated "scales" literally means "shields." *Deinosuchus* had bony plates called *osteoderms* embedded in its skin, many as large as an adult human's palm. Verse 17 says that leviathan's scales "stick together and cannot be parted." Similarly, *Deinosuchus*' osteoderms came riddled with deep pits where connective tissue was tightly tied.³ God also calls Job's attention to leviathan's "terrible teeth" (v. 14). *Deinosuchus* had "teeth the size of bananas."⁴

Job 41:25 refers to leviathan's "crashings" or thrashings, reminiscent of an alliga-

tor feeding. Then verse 31 says that "he makes the deep boil like a pot; he makes the sea like a pot of ointment." One stirs a pot of ointment. Modern alligators are famous for their death-roll maneuver, when they spin in the water to break apart large prey in their mouths. One study estimated that *Deinosuchus* could do death rolls although *Sarcosuchus* probably could not.⁵

What about those verses that refer to fire and smoke from leviathan's mouth and nostrils (vv. 20-21)? Smoke doesn't fossilize, but nostrils do. *Deinosuchus* had an enlarged chamber at the tip of its snout, and "the reason for its enlarged nose is unknown."² Could this extra space have housed a fire-making biochemistry setup?

In addition, "it had two large holes...at the tip of the snout in front of the nose. These holes are unique to *Deinosuchus*, and we do



not know what they were for.³⁴ One set of nostrils on top were for breathing, and a second set of nostrils aimed forward.

How could American fossils tie to Job's land of Uz? Genesis 7:22 notes creatures with nostrils died in the Flood. A young *Deino*-

suchus could have survived the Flood either on board the

Ark since it had nostrils and legs, or among the fish outside the Ark since waters were its main habitat. After the Flood, these supermassive, alligator-like monsters would have produced generations that migrated to suitable habitats around the world, possibly including Job's homeland where he witnessed the beast.⁶ Afterward, they went extinct like Job's behemoth.

From crocodile to *Spinosaurus* to *Deinosuchus*, fossil matches to leviathan

keep improving. They put Job and the Bible where they belong—in real history. \circledast

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article

highlights

Can we specifically identify the

leviathan of Job 41 from fossils?
The Spinosaurous and the Sar-

cosuchus are good candidates,

but new discoveries may sug-

reptile Deinosuchus is an even

gest the giant, alligator-like

closer match.

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Food Web Ecology Corroborates Scripture

article

highlights

Earth's food webs include plants, plant eaters, predators, parasites, scavengers,

Earth's total mix of food webs is de-

Food webs also illustrate our fallen

world's entropy and violence.

signed to support life and shows God's

and more.

provision.

eal-world ecology supports the Bible's trustworthiness. Accordingly, how creatures get and use food matches how Scripture describes our world.1-3

Food energy is one of life's basics; all living things need metabolic energy from some kind of food.14 God has fitted diverse creatures-living in this fallen world-for food webs so they can fill Earth's habitats. These food webs display God's caring providence. However, food webs "groan" with biochemical entropy

in serial energy transfers that progressively lose usable energy, demonstrating creation's fallenness.2,3,5

apologetics

Food Energy Transfers Exhibit **God's Good Providence**

The notion of a food chain (or food pyramid) is a simplified concept for understanding food energy transfers. Photosynthetic plants are autotrophs-

they produce their own food energy from sunlight and inorganic resources like carbon dioxide and water. Plants also become food for heterotrophs (lifeforms that consume other lifeforms as food).⁴

Food chains start with plant material (seeds, fruits, leaves, nuts, grains, grasses, root vegetables) eaten by herbivores like marmots, moose, moths, manatees, or monarchs. Herbivores are eaten as prey by carnivores or omnivores like walruses, wolves, weasels, wrasses, or wolverines. Some predators prey on other predators, so food chains may include secondary, tertiary, and quaternary consumers-with apex predators at the top of the food chain.⁵ However, apex predators themselves become food for parasites like blood-sucking ticks or mosquitos. Apex predators eventually die;



their corpses are eaten by scavengers like vultures. Thereafter, carrion leftovers are further consumed by detritivores like earthworms and decomposers like fungi.4

In sum, food energy is recycled as food chains branch out into what are really food webs-and those webs are further expanded by nitrogen cycle branching (including nitrogen-fixing bacteria) that extends beyond webs of carbohydrate trophic transfers, food

chain processes that metabolically harness carbohydrate food energy.6

Food Energy Transfers Exhibit **Creation's Wasting Fallenness**

Yet, at each trophic level (each "link" of a food chain), as food energy transfers from producer to consumer and then onto the next consumer, etc., the quantity of biochemically usable energy is wasted, lost, or depleted, with

heat emitted as wasted energy.^{2,3,5,6} This waste exhibits the Second Law of Thermodynamics, i.e., entropy, a universal rule.³

Thus, the repeated loss of useful energy in serial transfers of energy via the food chain illustrates Earth's fallen ecology, corroborating Scripture's description of creation as "groaning."2.3

In summary, food energy transfers—everywhere and every day-corroborate what the Bible teaches about God's careful and caring providence: God fits creatures to fill our fallen world.

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article

highlights

Many New Testament Christians practiced sacrificial giving. Giving is a concrete means of honoring and expressing our love for our Lord Jesus Christ. There are several con-

venient giving options

available to help you

support ICR.

ABOUND IN THIS

ne of the strongest exhortations for Christian giving is found in Paul's encouragement to the believers in Corinth. In 2 Corinthians 8, Paul praised the example set by the Macedonian churches who, in spite of "great trial of affliction" and "deep poverty," had given "beyond their ability" to help the impoverished believers in Jerusalem (vv. 2-3). Paul challenged the Corinthians: "But as you abound in everything—in faith, in speech, in knowledge, in all diligence, and in your love for us—see that you abound in this grace also" (v. 7).

Just as faith and love are "graces," so too are giving and the sharing of one's means. While giving isn't commanded of believers, it expresses our love for our Savior, the Lord Jesus Christ—the ultimate model of giving and grace (vv. 8-9).

If ICR's ministry is a blessing to you, we offer many ways you can "abound in this grace also." We encourage you to consider how you can help our ongoing work this fall.

Cash Gifts: Cash donations are not only fully tax-deductible as allowed by law but are also the most helpful form of support for ICR's work and the primary fuel that powers our daily operations. Please visit **ICR.org/donate** to donate online or set up recurring monthly gifts.

IRA Gifts: IRA owners 70¹/₂ years or older can make gifts up to \$100,000 to ICR under the popular charitable rollover provision. These qualified distributions do not count as income, so they are free from federal income tax and also count toward required minimum withdrawals. If you would like to bless ICR with a gift, please contact your IRA administrator or visit **ICR.org/donate_iras** for more information.

Stock Gifts: With the volatility in the stock market, this may be a good time to give appreciated stocks, bonds, or mutual fund shares to ICR in support of our ministry. Shares held for at least one year can be gifted directly to ICR, providing you with a full tax deduction at their current value while avoiding capital gains tax. Please contact ICR for our brokerage information or visit **ICR.org/donate_stocks**.

Workplace Campaigns: Large corporations and government organizations offer an automatic payroll deduction option to their employees as

an easy way to give to the charity of their choice. Corporate employees can recognize ICR as a write-in designation, and federal government and military personnel can give through the Combined Federal Campaign (CFC **#23095**, National/International section).

Matching Gifts: Many companies will match gifts made by employees and retirees to ICR and the ICR Discovery Center for Science & Earth History. Matches are typically made dollar-for-dollar, providing a great opportunity to "sow bountifully" (2 Corinthians 9:6) by doubling your gift. Check with your HR department to get started or visit ICR.org/matching-gifts.

Charitable Gift Annuities (CGA): For supporters over the age of 65, CGAs provide the best *guaranteed* returns in the market today—typically 4.0% to 8.5% depending on your age. For as little as \$10,000, an ICR gift annuity will provide fixed income for life, a present tax deduction, and a tax-free portion on future payments—benefits secular annuities can't match. If you'd like to help ICR and still need ongoing income, this option may be right for you. Not all states qualify, so please contact us for a customized no-obligation proposal.

ICR is grateful for all of you serving alongside us with your financial support, and we truly "thank...God upon every remembrance of you" (Philippians 1:3). We only move forward as the Lord provides

through you, so please prayerfully consider how you can partner with us. We welcome the opportunity to personally serve you at **800.337.0375** or **steward-ship@ICR.org**.



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



Visit ICR.org/donate 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.





Wonderful creation science museum. Plan to spend at least three hours—more if you take in a planetarium show or two. This is a brand-new museum with stateof-the-art. interactive media and animatronic T. rex and other animals. All the exhibits are topnotch....Highly recommend for

homeschoolers, groups, and individuals. Glad we went. And the staff was super friendly.

— D. P.

Wonderful museum for kids and families to visit. Learn how God created the universe and answer questions like **Did Noah have** dinosaurs on the Ark? How big was the Ice Age? What about dragons? WOW! Impressive!

— L. B.

What excites you the most about the ICR Discovery Center? The displays are such an impressive way to illustrate God creating the solar system, the galaxies [and] us! Finally, a science/ research museum that doesn't preach the gospel of evolution.

- N. E. G.

In 1971, Dr. [Henry M.] Morris came to the First Baptist Church in Roswell, New Mexico, and made a presentation. I have a degree in chemistry and had worked as a research chemist. I was



a believer, but because I had not been presented with the evidence, I considered myself a theo-evolutionist. Dr. Morris made one statement that totally made a paradigm shift in my thinking and life. He talked about that there couldn't have been suffering and death before man's sin or the whole Christian faith would be meaningless and unnecessary (my words, not his). I have been a 6-day creationist ever since and have received Acts & Facts for almost 50 years. Thank you for your continued work and dedication.

— C. G.



My order of Carved in Stone came Friday evening. I have been reading until my eyes blurred! WOW and WOW again....I was a creationist back in the early sixties. Except for The Genesis Flood, there was very, very



little published material for the creation community. Compare that with what ICR is doing

today. Unreal. I also got **Rethinking Radiometric** Dating. Both are great. Please let Dr. [Tim] Clarey know how much



I admire his careful and tedious efforts to document his text.... [His] text is structured so that we can get an outstanding appre-

ciation of the fundamental geology behind the "mechanics" of Flood geology. Love the artwork and presentation.

— D.



I spent a week with Dr. [Randy] Guliuzza and Dr. Tim Clarey last summer in the Black Hills of South Dakota. I'm a retired science educator, and it was the best week of my life! I hope that Dr. Guliuzza's new position with ICR does not mean that he will stop speaking. He's by far one of the most awesome, engaging, brilliant, persuasive (and funny) speakers that ICR has ever had—and I've followed ICR since

back in the days when Dr. Henry Morris visited Tampa where I was teaching evolutionary lies to kids. This ministry led me to the Lord, and if I had the money I'd fly all over the country just to hear Randy Guliuzza and Tim Clarey speak.

— T. S.

Editor's note: Not to worry, Dr. Guliuzza will continue speaking.

Thank you all! We are helping to raise our great-grandson, and he is being exposed to your video clips and enjoys them at four years of age. He loves the dinosaur pictures in Acts & Facts. We really appreciate your dedication to providing such highquality materials. — R. C.



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. We cannot review manuscripts, books, or other materials.





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