

ACTS & FACTS

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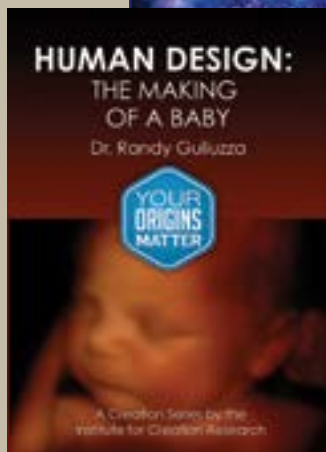
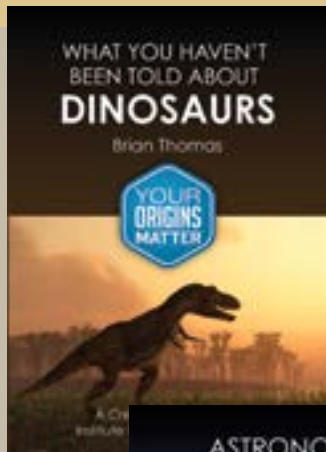
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Be the One to Make a Difference

When new acquaintances ask me what I do and I tell them I'm the Communications Director for the Institute for Creation Research—ICR—I get a variety of responses. “And what exactly is that?” is the most common follow-up question. Some politely smile and say, “Is that the organization that did a big book on the Flood?” Others squint and nod slowly with recognition, saying “Oh yeah—are you associated with that group that [the Hollywood actor who jumps on couches] is a part of?”

It surprises me that ICR has been around for over 40 years and most of the general public still don't know who we are or what we do.



At a recent ICR conference, I sat next to a college student who had been in church her whole life and still felt confused about creation—her college biology and astronomy professors made convincing arguments for millions of years of evolution. While she believed the Bible, she thought maybe God used evolution to create the world. I saw her several times throughout the event, and on the last day she grabbed as many books and DVDs as she could carry from our resource tables. ICR presenters had finally convinced her that God created the universe in a literal six-day time period, and she wanted to equip herself to talk to others about creation.

Doesn't it make you wonder—how was she raised in an evangelical church and yet still had doubts about a recent creation? How did she sit through sermon after ser-

mon and *not* know what the Bible taught? Did her church not teach biblical creation or was her early secular school education too convincing?

ICR's challenge is to reach this generation with God's truth about creation. We realize that it's not really all that important if folks don't know who *we* are, but it becomes a huge problem when even faithful churchgoers don't understand creation. How do we as believers get the message out?

Dr. Henry M. Morris III says in this month's feature article, “If we are to accomplish anything of eternal value, we must be using ‘two hands’ at all times” (“Both Hands,” page 7). He makes the point that we need to work and wield the sword at the same time—both hands must be busy serving *and* defending ministry.

We're looking for ways to make your mission as a Christian easier by providing information that equips you to share God's creation truths with others. Henry Morris IV talks about our latest efforts in “An Evening at ICR,” (pages 20-21). We've spent the past year developing a 12-part DVD creation series, *Unlocking the Mysteries of Genesis*, an invaluable creation science resource for seekers, churchgoers, and even skeptics. We're asking you—our ICR family—to become a part of our efforts to reach others. Please share what you know, point others to our website and resources, invite friends and family to events, “like us” on our Facebook page, follow us on Twitter (@icrmedia), and tell others about our newest DVD project. Go to www.UnlockingTheMysteriesOfGenesis.org to learn more about this upcoming series.

January is a good time to evaluate where you've been and where you want to go to choose to make a difference. As Dr. Morris says—use both hands. Work for the Kingdom while you defend the faith. Partner with ICR and become an advocate for creation ministry. It's fun when others say to me, “Sure, I know who you are—you all are the dinosaur people!” *But there's so much more to know about God's amazing creation!* Tell a friend...and another and another. Tell your pastor and tell your coworkers. Be the one to speak up. Be the one to make a difference in this generation.

Jayme Durant
EXECUTIVE EDITOR

BOTH HANDS

Those who built on the wall, and those who carried burdens, loaded themselves so that with one hand they worked at construction, and with the other held a weapon.

NEHEMIAH 4:17

There came a time during the reconstruction of Jerusalem's fortifications when all of Israel's enemies aligned themselves against the precious few who had returned to their homeland. About 50,000 Jews came back to Jerusalem to rebuild the temple and restart the proper worship of God that had languished during the long decades of captivity in Babylon. In addition to renewing wor-

ship, Nehemiah also returned to take charge of restoring order to the city, after finding the leadership in disarray and the surrounding territory overrun.

The Bible books of Ezra and Nehemiah detail the startling efforts of Zerubbabel and Ezra to bring spiritual revival to the city. The prophets Haggai, Zechariah, and Malachi all delivered encouragement and challenge during those years, and Nehe-

miah came under the Lord's calling to restore the fortifications with authorization from the Persian king Artaxerxes. When the local rulers found out they were required to help in the rebuilding of Jerusalem, they were angered and devised several plots to undermine the efforts and dishearten the people.

Ultimately, Sanballat, Tobiah, the Arabs, the Ammonites, and the Ashdodites all united in a guerilla warfare campaign

HENRY M. MORRIS III, D.M.I.N.

“to come and attack Jerusalem and create confusion” (Nehemiah 4:7-8). As expected, the initial reaction among God’s people was a fearful rush to abandon the work since the enemies were too many and it seemed “impossible” to overcome their combined might. Nehemiah’s rally of the leadership and his magnificent management of the subsequent construction of the wall has been the subject of many sermons.

There Is Always Work to Be Done in the Kingdom

One of the timeless principles we can draw from this episode in history is that there will always be work to be done in the

Kingdom. Projects and needs will vary with time, culture, and circumstance, but we are called to give a consistent effort to evangelize the unsaved and disciple new converts throughout every generation. If it appears there is “nothing” to do, then it is sure the people’s vision has dimmed and their spiritual life is weakening. God’s order is that we occupy ourselves with His business until He comes, significantly multiplying the “minas” or gifts that we’ve been given (Luke 19:13).¹

All of us start with the gift of salvation and the complete set of instructions on “all things that pertain to life and godliness” (2 Peter 1:3). How we use the blessing of eternal life and the precious Word of

tion is that His servants make *efficient use* of all available resources to build His Kingdom.

There is always work to be done in the Kingdom.

There Are Always Enemies to Face in the Kingdom

The concept of enemies who attack and create confusion should come as no surprise to anyone involved in the work of God.

Yes, and all who desire to live godly in Christ Jesus will suffer persecution. (2 Timothy 3:12)

“Blessed are those who are persecuted for righteousness’ sake, For theirs is the kingdom of heaven. Blessed are you when they revile and persecute you, and say all kinds of evil against you falsely for My sake. Rejoice and be exceedingly glad, for great is your reward in heaven, for so they persecuted the prophets who were before you.” (Matthew 5:10-12)

“If you were of the world, the world would love its own. Yet because you are not of the world, but I chose you out of the world, therefore the world hates you. Remember the word that I said to you, ‘A servant is not greater than his master.’ If they persecuted Me, they will also persecute you. If they kept My word, they will keep yours also.” (John 15:19-20)

One of the seven churches that received letters in the opening chapters of the book of Revelation thought it was “wealthy, and [had] need of nothing” but was actually in danger of being spit—literally vomited—out of the Lord’s mouth because the church was “lukewarm, and neither cold nor hot” (Revelation 3:16-17). Perhaps we can infer that our opposition will be in direct proportion to how well we are accomplishing the work God has given us. The more we identify with the message and mission of our Lord—the more fervently we proclaim His gospel—the more we can expect enemies to attempt to thwart our efforts. Conversely, the more the world praises us, the more likely it is that we are slipping from God’s will (Luke 6:26).

The more we identify with the message and mission of our Lord—the more fervently we proclaim His gospel—the more we can expect enemies to attempt to thwart our efforts. Conversely, the more the world praises us, the more likely it is that we are slipping from God’s will.



God will determine how well we “occupy” the short space of time God has allowed us to live. Those who return tenfold and fivefold are given proportionate “real” responsibility in the eternal Kingdom just as in the parable. The “wicked servant” who does nothing with the Lord’s gift loses even his initial gift (Luke 19:22-24). The measurement was one of return.

The Lord also gives a differing amount of “talents...to each according to his own ability” (Matthew 25:15). When He does finally return and judges each of us, He will evaluate how well we have done with the opportunities, resources, and station in life that we’ve been granted. “For everyone to whom much is given, from him much will be required” (Luke 12:48). God’s expecta-

One Hand on the Plow, One Hand on the Sword

For both Nehemiah and for the New Testament believer, the solution is that we must always have one hand on the “plow” and one hand on the “sword” if we are to be actively engaged in the work of the Kingdom.

But Jesus said to him, “No one, having put his hand to the plow, and looking back, is fit for the kingdom of God.” (Luke 9:62)

In the context of this verse, the Lord Jesus was responding to several men who had promised allegiance to the work of Christ, but their promises were conditional—first one then another began to ask permission to delay their commitment until various worldly engagements were completed. Christ’s response is very important. Our allegiance to the Kingdom must take first priority. The Lord said it this way: “But seek first the kingdom of God and His righteousness, and all these things shall be added to you” (Matthew 6:33). If we are going to be *effective* and *efficient* in the work of the Kingdom, we cannot have a dual allegiance. “No servant can serve two masters” (Luke 16:13).

But while one hand is working with the plow or building the wall in Kingdom ministry, we must also be completely armed and ready to stand when the enemy attacks. The famous passage in Ephesians illustrates the importance of wearing the armor; the belt, the breastplate, shoes, shield, and helmet are all part of the powerful defensive protection that He has provided for us.

Occasionally the project is so big that our attention is concentrated on plotting out the scope of the work before us. The danger lies in becoming so focused on the task that we let down our spiritual guard, become consumed with the process, and lose awareness of why we are plowing and what we are sowing!

And take the helmet of salvation, and the sword of the Spirit, which is the word of God. (Ephesians 6:17)

The sword is a weapon that can be wielded by just one hand.

There will be seasons when our “plow” grabs most of our attention. Sometimes the ground is lumpy and has old tree roots and stones that must be worked out of the soil before planting can be done. Occasionally the project is so big that our attention is concentrated on plotting out the scope of the work before us. The danger lies in becoming so focused on the task that we let down our spiritual guard, become consumed with the process, and lose awareness of why we are plowing and what we are sowing!

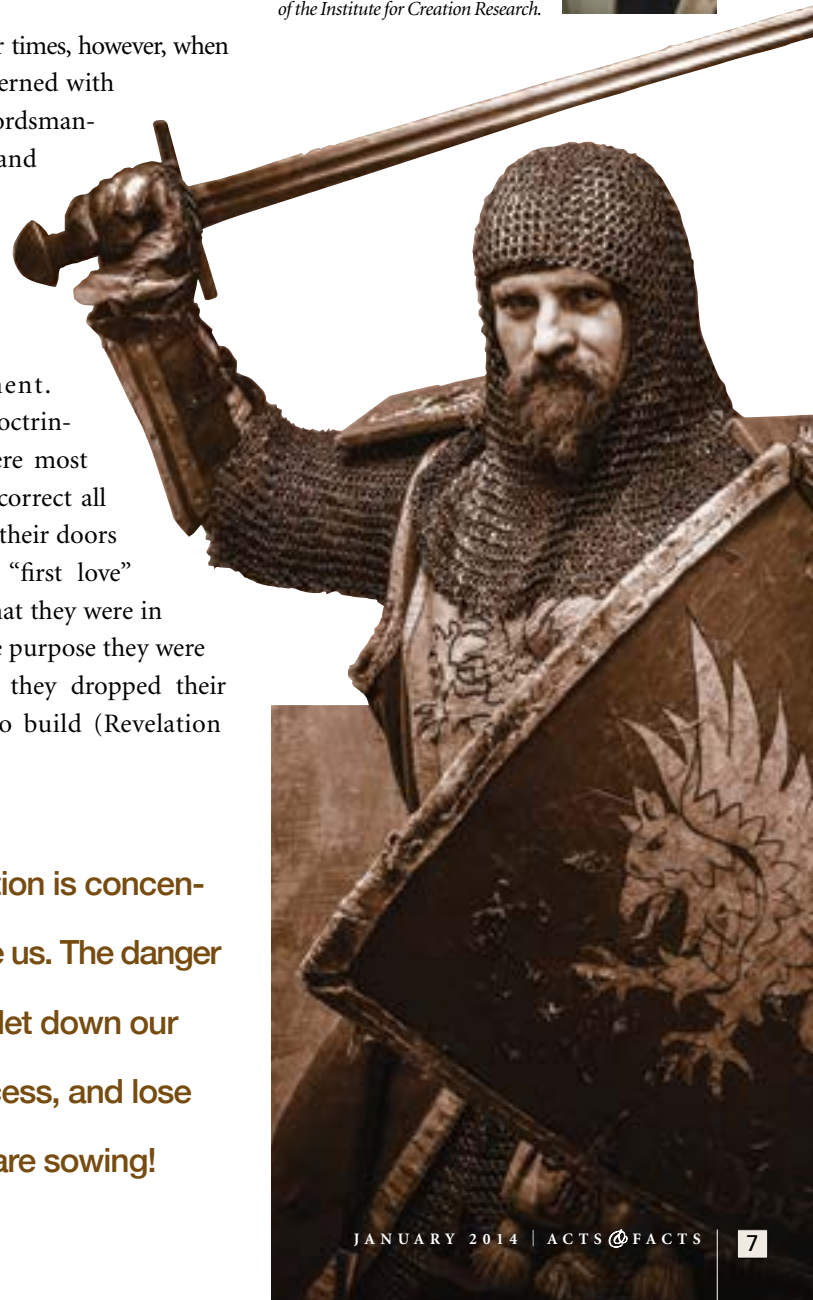
There are other times, however, when we become so concerned with developing our swordsmanship that we flash and slash to the bedazzlement of all but leave the work undone. Ephesus was a church in this type of predicament. They had become doctrinally precise and were most careful to test and correct all who came through their doors but had left their “first love” and were warned that they were in danger of losing the purpose they were commissioned for; they dropped their plow and ceased to build (Revelation 2:4-5).

When the Sanballats and the Tobiahs, the Arabs, the Ammonites, and the Ashdodites all band together to stop the work, as they will surely do if we are accomplishing anything worthwhile in the Kingdom, the “sword of the Spirit”—the very Word of God—is the only effective weapon that we have against them. We absolutely need the armor, and we must be doing the work of the Kingdom, but if we are to accomplish anything of eternal value, we must be using “two hands” at all times. ●

Reference

1. “The *mina*...was worth about three months’ salary.” Footnote for Luke 19:13. 1982. *The Holy Bible, New King James Version*. Nashville, TN: Thomas Nelson, Inc.

Dr. Morris is Chief Executive Officer of the Institute for Creation Research.



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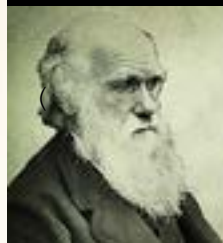
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Using ENCODE Data for Human-Chimp DNA Comparisons

In 2012, a variety of research papers associated with the ENCODE project (**Encyclopedia Of DNA Elements**) described how the human genome was pervasively copied—transcribed—into an amazing array of functional RNA molecules that regulate how genes and the genome function.¹

Much of the pervasive transcription is based on long non-coding RNAs (lncRNAs) that have the same control features as protein-coding genes but with other functions.² A large group of lncRNAs stay in the cell's nucleus, where some directly regulate how genes are expressed while others help modify chromosome structure. Some lncRNAs are exported into the cell's cytoplasm to regulate the production of proteins, and others interact with various proteins to participate in other functions. Still other lncRNAs are exported completely *out* of the cell and communicate with other cells.

By definition, an lncRNA region of the genome encodes a non-protein-coding RNA transcript longer than 200 bases, yet some actually produce small proteins as well. These lncRNA areas can be found all over the genome, including inside introns—the non-coding segments within protein-coding genes.

Several major subclasses of lncRNAs are the long and *very* long intergenic non-coding RNAs that exist outside protein-coding genes, known as lincRNAs and vlincRNAs respectively.^{1,3} These are decidedly more restricted in their expression, depending on the animal classification in which they are found, compared to protein-coding genes.⁴ Thus, they make ideal candidates for research in studying genetic discontinuity, particularly between humans and chimpanzees.

A common claim among evolutionists is that human and chimp DNA is between 96 and 98 percent similar—but only carefully selected data were used to arrive at this conclusion. However, evolutionists themselves have reported that only about two-thirds of chimpanzee DNA sequence can be unambiguously aligned, meaning precisely matched, to human DNA.⁵ This is because the algorithm used in the analysis stops matching the DNA sequence when the human and chimp segments become too dissimilar, which occurs after only a few

hundred bases, on average.⁶

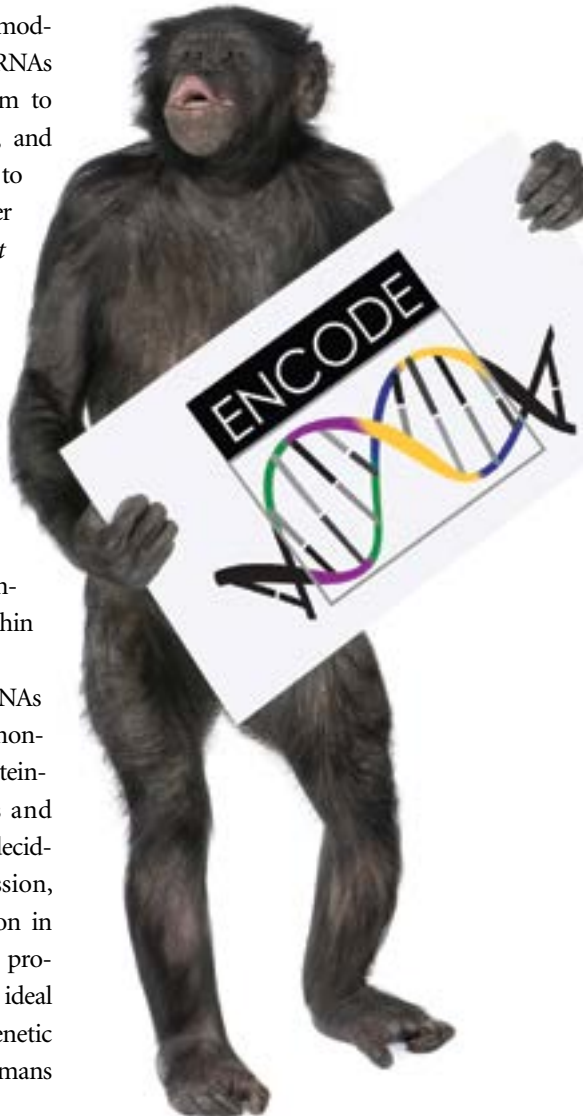
In 2013, I published a research paper in which chimpanzee chromosomes were sequentially sliced into different sets of small pieces so that the algorithm could optimally compare them to human chromosomes. In so doing, I found that the chimpanzee genome was only about 70 percent similar to the human genome overall.⁷

More research is needed to show specifically how the new wealth of publicly available ENCODE data can be used beyond basic studies of human-chimp DNA similarity—incorporating lincRNAs and vlincRNAs to further highlight human uniqueness. Research using three large datasets produced by the ENCODE project is now underway at ICR for the purpose of addressing these questions. In a concurrent study, I am also comparing human protein-coding regions to those in chimpanzees. In combination, these new analyses will provide a much more detailed picture of what makes humans unique and will further demonstrate we are not evolved apes. ●

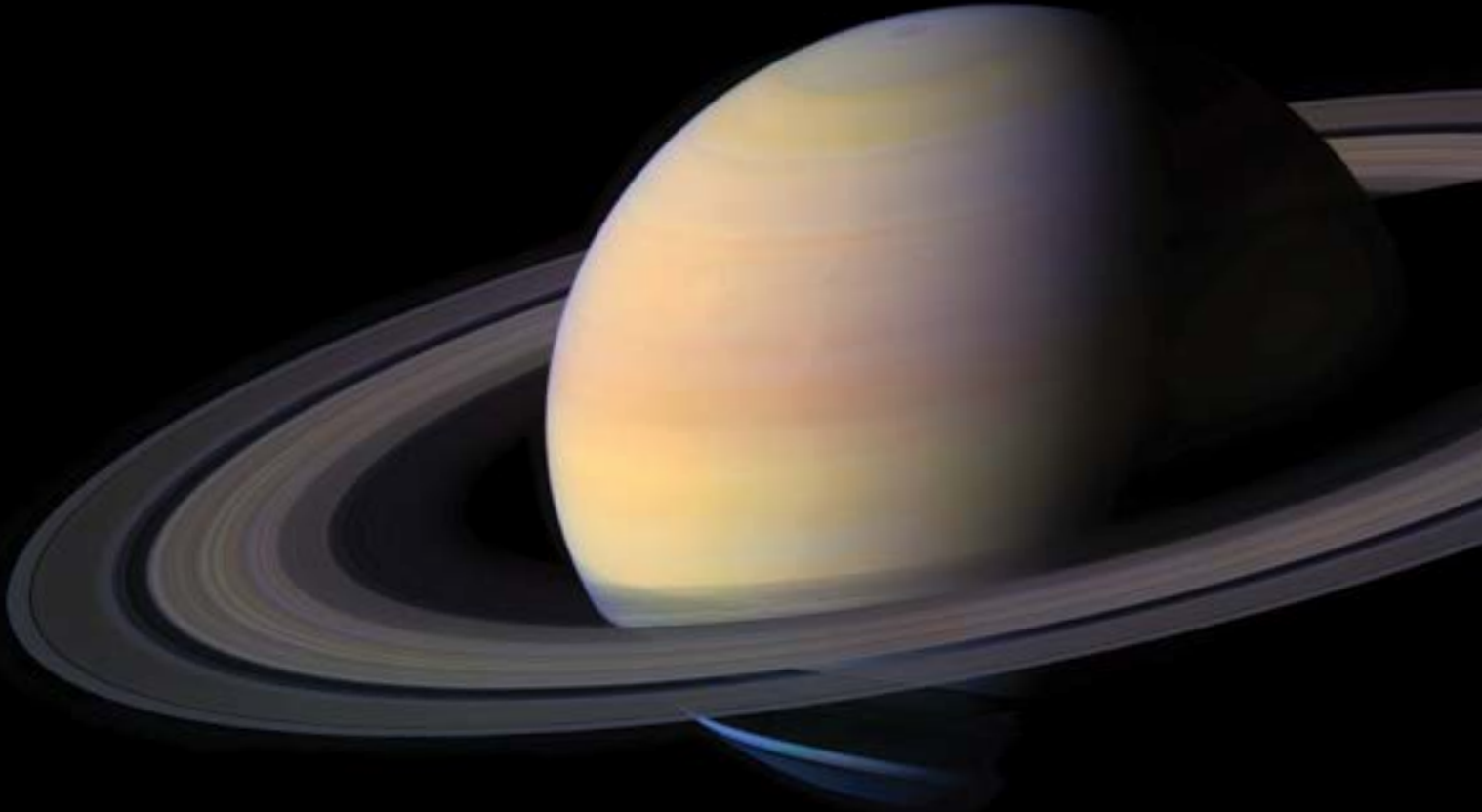
References

1. Djebali, S. et al. 2012. Landscape of Transcription in Human Cells. *Nature*. 489 (7414): 101-108.
2. Geisler, S. and J. Coller. 2013. RNA in Unexpected Places: Long Non-Coding RNA Functions in Diverse Cellular Contexts. *Nature Reviews Molecular Cell Biology*. 14 (11): 699-712.
3. Tomkins, J. 2013. VlincRNAs Provide Clues to Genomic Dark Matter. *Creation Science Update*. Posted on icr.org August 19, 2013, accessed November 13, 2013.
4. Liu, G., J. S. Mattick, and R. J. Taft. 2013. A meta-analysis of the genomic and transcriptomic composition of complex life. *Cell Cycle*. 12 (13): 2061-2072.
5. Ebersberger, I. et al. 2002. Genomewide Comparison of DNA Sequences between Humans and Chimpanzees. *American Journal of Human Genetics*. 70 (6): 1490-1497.
6. Tomkins, J. 2011. Genome-Wide DNA Alignment Similarity (Identity) for 40,000 Chimpanzee DNA Sequences Queried against the Human Genome is 86-89%. *Answers Research Journal*. 4 (2011): 233-241.
7. Tomkins, J. 2013. Comprehensive Analysis of Chimpanzee and Human Chromosomes Reveals Average DNA Similarity of 70%. *Answers Research Journal*. 6 (2012): 63-69.

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



The Solar System: Saturn



When people peer into a telescope and see Saturn for the first time, the typical response is “Wow!” All the other planets appear as simple disks with a few surface features, but Saturn’s rich system of rings makes it look more like a piece of celestial jewelry. Composed of trillions of tiny moonlets—particles of water ice—these rings orbit Saturn, giving it a stunning, three-dimensional appearance quite different from any other planet.

Basic Properties

Saturn is a slightly smaller version of Jupiter in most respects. It is made of hydrogen and helium gas and trace amounts of molecules such as the methane and am-

monia that give rise to its yellow color. As with Jupiter, colorful clouds are stretched into belts (dark-colored) and zones (light-colored). However, Saturn’s belts and zones are more subtle than Jupiter’s.

Nine times the size of Earth in diameter, Saturn has the lowest density of any planet and, amazingly, would actually float in water. At a distance of 890 million miles from the sun, Saturn takes 29.5 years to complete just one orbit.

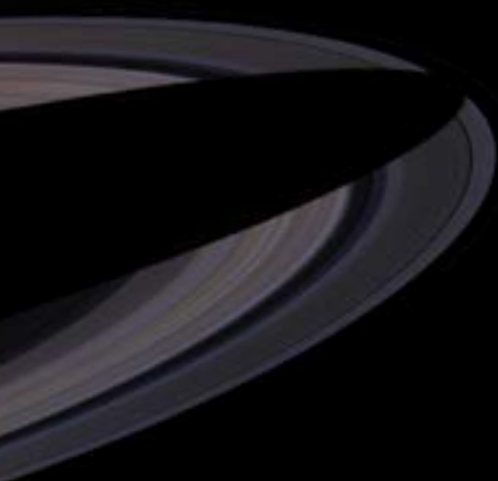
Powerful storms large enough to be seen from Earth occasionally develop in Saturn’s atmosphere and appear as bright regions within the belts and zones. Although Saturn has no permanent storms like Jupiter’s Great Red Spot, its intermittent storms can last for many months. A Great White Spot manifests roughly every 30 years dur-

ing the planet’s northern hemisphere summer and can periodically occur in off-years as well, as it did in 2010.

Lord of the Rings

Even though Jupiter, Uranus, and Neptune all have their own system of rings, Saturn’s are by far the most impressive. The main rings span 170,000 miles across but are less than one mile thick. For comparison, this is over one thousand times thinner than the relative thickness of a DVD. The rings orbit in the plane of Saturn’s equator. Fortunately, the planet’s rotation axis is tilted 26.7 degrees in relation to the planetary orbital plane, which affords us a lovely view of the rings. Without this tilt, the rings would always appear edge-on, making them virtually invisible.

As it orbits the sun, Saturn’s tilt does



the planet's appearance. The last edge-on view occurred in September 2009, and the next one will be in March 2025. Conversely, when the sun is farthest from Saturn's equatorial plane during the planet's summer and winter solstices, we observe Saturn with its northern or southern hemisphere respectively tipped maximally toward us. At these times, we can get our most spectacular view of the rings.

Saturn has several different systems of rings that differ in brightness. The three major rings that are visible with a modest telescope are labeled the A-, B-, and C-rings. A is the outermost of these. B is in the middle and is the brightest. The C-ring is the faintest and is difficult to see except in a high-quality telescope. A small but noticeable void, the *Cassini Division*, occurs between the A- and B-rings and is usually visible in a modest backyard telescope under good conditions. Other smaller divides also exist, such as the *Encke*

Gap within the A-ring, but these are not normally discernable without the most powerful telescopes.¹

Four spacecraft have visited Saturn: *Pioneer 11*, *Voyager 1*, *Voyager 2*, and *Cassini*. These unmanned probes provided spectacular close-up views of Saturn, its rings, and its moons. *Pioneer 11* first detected the F-ring, a narrow filament of icy particles that orbits just beyond the A-ring and contains multiple threads twisted like the strands of a rope.

The Moons

At latest count, Saturn has 62 known moons—not including the trillions of tiny moonlets comprising its rings.² Most of these moons are tiny—just a few miles across. Only 13 are larger than 50 miles in diameter, and only five are larger than 500 miles in diameter. Titan is the largest, easily seen in a small telescope or good binoculars as a tiny orange star next to the planet. At

3,200 miles in diameter, Titan is the second-largest moon in the solar system (behind Jupiter's Ganymede), about 48 percent larger than Earth's moon.³ Like Ganymede, Titan is larger than the planet Mercury and would be classified as a planet if it orbited the sun directly.

Titan is the only known moon with a thick atmosphere. This atmosphere is composed primarily of nitrogen but has traces of methane and other hydrocarbons. It is these trace molecules that give rise to Titan's orange color and make it nearly impossible to see any surface features. The existence of methane in Titan's atmosphere is something of a mystery for those who believe that this moon is billions of years old; solar ultraviolet radiation from the sun is expected to break down methane in a timescale of only a few tens of millions of years.

At a distance of 890 million miles from the sun, Saturn takes 29.5 years to complete just one orbit.

Another of Saturn's moons, Mimas, orbits close to the planet and is easy to recognize because it has an enormous crater on one side. This crater, named Herschel, is about one-third the diameter of Mimas and gives the moon a very strange appearance—a bit like the Death Star from the *Star Wars* movies.⁴

In contrast, Saturn's moon Enceladus is white as snow and has only small craters.⁵ The *Cassini* spacecraft discovered plumes of icy material being ejected like geysers near this little moon's south pole, indicating that Enceladus has significant internal heat. This is problematic for those who believe that the solar system is billions of years old because if the moon were really that old, that heat should have escaped long ago. Unlike Jupiter's moon Io, Enceladus does not experience enough gravitational tugging to regenerate its internal heat.

Saturn is the only planet known to have Trojan moons—moons that share a common orbit at precisely the same speed

not change—it's our perspective of the planet that shifts as we see it from various angles. From Earth, it *appears* as though Saturn's tilt gradually moves from 26.7 degrees to negative 26.7 degrees and back every 29.5 years as Saturn completes its orbit.

For this reason, every 15 years or so Saturn's equator appears edge-on from our viewpoint. This occurs around the time that Saturn experiences its spring or fall equinox—the period when Saturn's equatorial plane intersects the sun. Since Saturn's rings orbit its equator, they, too, appear nearly edge-on for many months around the time of the Saturnian equinoxes, resembling a pin stuck through the middle of a grape. For the weeks surrounding the moment of equinox, Saturn's rings are so close to edge-on that they are hidden, drastically changing

and thus never collide.⁶ In any planet-moon system there are two stable locations where another small moon can be placed so that it will orbit at the same speed as the larger moon. These locations, called *Lagrangian points*, are 60 degrees ahead of the large moon in its orbit and 60 degrees behind, respectively.⁷ The larger moon, smaller moon, and planet form an equilateral triangle—a very stable configuration. Saturn’s moon Tethys shares its orbit with Telesto (leading Tethys by 60 degrees) and Calypso (which trails Tethys by 60 degrees). Also, Dione shares its orbit with Helene (which leads) and Polydeuces (which follows).

The moons of Saturn are partly responsible for the complex structure of its rings. Small gravitational fields of these moons can perturb ring particles into different orbits in several ways. The moon Mimas is responsible for the Cassini Division. Mimas orbits outside the main rings but is in a 1:2 resonance with any moonlet that might wander into the Cassini Division; that is, Mimas orbits once every time a Cassini moonlet orbits twice. Any hypothetical moonlets would repeatedly get a gravitational tug at the same point in their orbit, eventually pulling them out of that orbit and leaving the Cassini Division relatively empty of moonlets.

The Encke Gap is caused by the moon Pan. Pan orbits within the Encke Gap and gravitationally deflects any moonlets that wander too close to it.

Prometheus and Pandora are the moons responsible for the thin F-ring. Prometheus orbits just inside the F-ring, and Pandora orbits just outside. These are called *shepherd moons* because they gravitationally deflect any wayward moonlets back into the F-ring. Several other shepherd moons have been discovered in our solar system.

Janus and Epimetheus are two especially fascinating moons of Saturn that presented astronomers with a perplexing



At 3,200 miles in diameter, Titan is the second largest moon in the solar system (behind Jupiter’s Ganymede), about 48 percent larger than Earth’s moon.³ Like Ganymede, Titan is larger than the planet Mercury and would be classified as a planet if it orbited the sun directly.

riddle. Epimetheus is approximately 72 miles in diameter, and Janus is 111 miles in diameter. Both have nearly circular orbits around Saturn’s equator; Epimetheus orbits at a distance of 94,089 miles while Janus orbits at a slightly greater distance of 94,120 miles. Since Epimetheus is 31 miles closer to the planet than Janus is, it orbits slightly faster (Kepler’s third law).⁸ Both moons take about 16.7 hours to orbit Saturn, but since Epimetheus is on the inside track, it takes 30 seconds less. So, if the two moons were placed at the same starting line, Epimetheus would slightly lead and eventually lap Janus in about four years. The riddle comes when we consider what happens when Epimetheus is about to pass Janus in that fourth year. Recall that the difference between the two orbits of these moons is only 31 miles—but that is *less* than the diameter of either moon. So how is Epimetheus able to pass Janus without collision? These moons have been observed for many decades, and a crash has yet to happen.

The answer to the riddle relates to the recession of Earth’s moon.⁹ Recall that tidal forces pull forward on Earth’s moon, giving it energy. This extra energy causes the moon to move into a higher (more distant) orbit by about 1.5 inches every year. A similar ef-

fect happens between Janus and Epimetheus. As Epimetheus approaches Janus from behind, the gravity of Janus pulls forward on Epimetheus—giving Epimetheus extra energy that causes it to move into a higher orbit. Meanwhile, the gravity of Epimetheus pulls backward on Janus, causing Janus to lose energy and drop into a lower orbit. The two moons avoid collision by swapping orbits! After this swapping, Janus is on the inside track and begins orbiting faster than Epimetheus, which is on the slower, outside track. Their separation gradually increases until four years later when Janus is nearly ready to lap Epimetheus. At that time, the mutual gravity of the two moons causes them to switch back into their original orbits.

What an amazing solar system the Lord has created! Almost every day some new scientific discovery gives us a little glimpse into the mind of God, and Saturn is certainly a wonderful example of His creative genius. ●

References

1. Voids in between two systems of rings are called *divisions*—such as the Cassini Division, which occurs between the A- and B-ring systems. Voids within a system of rings are called *gaps*—such as the Encke Gap, which occurs entirely within the A-ring system. This distinction in terminology was codified in 2008. In older literature, the terms were used somewhat interchangeably.
2. Currently, there is no scientific consensus on the size threshold that distinguishes a moon from a ring moonlet.
3. It was long thought that Titan is slightly larger than Ganymede. The name Titan certainly fits what was then considered to be the largest moon. However, the larger appearance is due to Titan’s thick atmosphere, which extends far above the moon’s surface. In terms of solid surface, Ganymede is larger.
4. The crater is named after William Herschel who discovered Mimas in 1789.
5. Enceladus: Overview. Solar System Exploration. NASA. Posted on solarsystem.nasa.gov, accessed November 4, 2013.
6. The term arises from the fact that these moons “hide” in the same orbit as another moon, reminiscent of the Greeks who hid inside the wooden horse in the Trojan War.
7. Lagrangian points are named after their discoverer, Joseph-Louis Lagrange. There are actually five Lagrangian points, but only two of them are stable in all three spatial dimensions. That is, a tiny perturbation from a stable Lagrangian point in any direction will not cause the small moon to escape the system.
8. The square of the period of a moon’s orbit is proportional to the cube of its average distance from the planet. Consequently, inner moons orbit faster than outer moons.
9. Lunar recession is discussed in the Earth-moon Impact article in the October 2013 issue of *Acts & Facts*.

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Bloody Mosquito Pierces Standard Fossil Dating Procedure

BRIAN THOMAS, M.S., AND TIM CLAREY, PH.D.

A Blood-Filled Fossil

Researchers recently examined a spectacular mosquito fossil containing still-bloody remnants within its body. They dated the fossil based on the assumed age of the Kishenehn Formation where it was found, assigning it an age of 46 million years.¹ Publishing in the *Proceedings of the National Academy of Sciences (PNAS)*, the team used energy dispersive X-ray spectroscopy to confirm in triplicate the presence of iron and *heme* (blood pigments) inside the fossil mosquito's abdomen, where living female mosquitos store their blood meals. The study authors wrote, "The combination of these two determinations indicates that the porphyrins [dark red pigments] are derived from the oxygen-carrying heme moiety of hemoglobin"—real blood.¹

This mosquito's abdomen, and likely its entire body, was never *mineralized*—i.e., replaced by minerals. Instead, it was preserved as a tiny carcass in a rock, called a *compression fossil*.¹ Secular researchers have

detected hemoglobin remnants like these in several other species, including tyrannosaur, hadrosaur, and mosasaur fossils.

These fossils pose a huge problem for evolutionary dating methods. Although a new study has shown that iron actually helps preserve dead nearby cells, no experiment has yet demonstrated a tissue decay rate that supports preservation over millions of years.² Most longevity studies of biomolecules like hemoglobin, DNA, and collagen show decay rates in ranges that spell total disintegration of sterile samples from within a few months to several hundred thousand years, assuming reasonable Earth surface temperatures.³

And there's additional data to refute this old age assignment: The Kishenehn Formation also contains oil. If the rock is indeed millions of years old, then like blood's heme pigments, oil's organic, carbon-rich molecules should have completely degraded long ago—especially considering the voracious nature of oil-eating bacteria.⁴ Kishenehn oil contains heme from plant chlorophylls that

also shouldn't be there if the area is as old as the literature asserts.⁵ Even if bacteria were somehow kept from this oil for millions of years, it would still have fizzled into inorganic forms such as carbon dioxide, long before 46 million years elapsed.



Image credit: PhotoLutherland, posted on Wikipedia.org

Conflict of the Ages

The authors of the mosquito paper wrote, "The data reported herein provide incontrovertible documentation of the presence of heme- and arguably hemoglobin-derived porphyrin in a 46-million-year-old compression fossil and localize the porphyrins to a specific anatomical structure within that fossil."¹ Yet, while they *did* directly mea-

sure the blood elements, they did *not* directly measure the fossil's age.

How can one resolve the conflict between real protein's maximum inferred age limit of thousands of years and the fossil protein's age assignment of millions of years? Examining the fossil age-dating procedure that these secular scientists used tells an informative story. The authors cited a previously published age assigned to the Kishenehn Formation where the mosquito fossil was found rather than doing an independent or objective test of the fossil's age.

Embarrassing Radioisotope Results

The geological publication the study authors cited actually listed two ages for the relevant layers within the Kishenehn: 46.2 ± 0.4 and 43.5 ± 4.9 million years.⁶ Why the *PNAS* authors chose 46 million over 43 million is anyone's guess since they offered no explanation in their report.

Radioisotope dating involving argon decay provided the older of the two ages. Argon-argon dating methods begin by measuring relative amounts of argon isotopes—or versions of an element with different masses—in an igneous rock sample. Though the Kishenehn is largely sedimentary, it does contain volcanic ash called tephra that holds argon. Researchers generated age

estimates after assuming 1) that no argon isotopes had entered or escaped the tephra since it was deposited and 2) that all of the originally deposited argon was of the parent isotope and that the sample originally had none of the daughter isotope (the heavier parent decays into the lighter daughter).

Data from several unrelated studies have debunked the second assumption, showing that argon-based radioisotope dating methods don't work and offering a reason why. For example, one geologist reviewed 23 studies of rocks of historical ages. The exact year each rock formed was known. Yet, 23 out of 23 rocks rendered “excessively old K-Ar ‘ages’” when tested.⁷ The radioisotope ages were orders of magnitude above the rocks' actual ages. What caused this systemic problem? Extra argon had entered the hardening volcanic rocks from sources other than radioisotope decay. Thus, scientists who assumed that the ratios depended entirely on radioactive decay saw the rocks as far older than they really were.

An illustration might clarify the issue. Suppose scientists developed a method to determine a person's age by comparing the relative numbers of their gray and colored hairs. They would probably first standardize hair ratios to ages in years. Finding extra argon in these volcanic rocks is like discovering that some process other than aging (severe emotional trauma, for instance) adds extra gray hairs. Like so many gray-haired twenty-somethings, volcanic rocks can be argon-rich and yet quite young.

These argon-based methods have failed in the past. Why should they be trusted in this case? Could a separate dating technique confirm the Kishenehn Formation's argon-based ages? Researchers already tried this, deriving a uranium-based date from the same region within the Kishenehn Formation that yielded a much younger age of only 33.2 ± 1.5 million years.⁸

Finding discordant radioisotope dates is nothing new. In 1986, another geologist

described radioisotopes in England: “Although the problems of loss of daughter product are far less severe in the ^{87}Rb - ^{87}Sr method than in ^{40}K - ^{40}Ar dating, they do as shown, still exist. Even in igneous rocks, discordant mineral dates are more often encountered than concordant dates.”⁹ And not just a little discordant. Just like some of the attempts at dating the Kishenehn Formation, separately obtained ages often lie far outside each other's error margins.

If radioisotope dating really worked, then its different isotope systems would align with one another and with known ages when used on the same rock. But it doesn't.

Fossil “Ages” to the Rescue?

Since isolated radioisotope results cannot be trusted to provide accurate ages, secular scientists add more steps to the process of age-dating rocks and fossils. By what means do they select different date options? Typically, they correlate the fossils in the rock layer to a chart showing rock layers with numbered ages printed alongside fossil descriptions. They then select ages that match those printed on the chart where the described fossils appear.

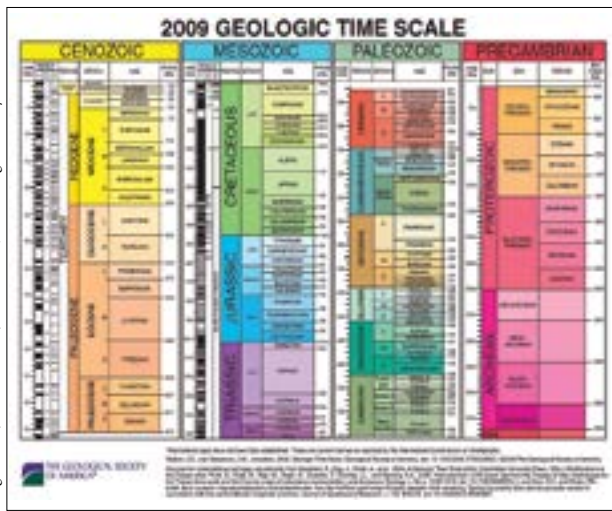
For example, one paper reported that the Kishenehn Formation “contains a fauna of nonmarine mollusks [freshwater clams] and mammals, the latter permitting an age assignment to the Early Oligocene or Late Eocene”—“ages” that range from 28 to 38 million years ago.¹⁰

After petroleum geologist Patrick Monahan studied the area's geology, he wrote,

The Kishenehn Formation has a diverse fauna and flora that suggests a range of ages between late Eocene and early Miocene. However, a fission track age of $33.2 \pm 1.5\text{Ma}$ in the lower member in the Kishenehn Basin, and a K/Ar date of $29.9 \pm 5.3\text{Ma}$ in similar strata in a nearby basin indicate that the lower part of the Kishenehn is early to middle Oligocene.¹¹



Image credit: G. Egniguren, posted on www.cas.usf.edu



Mixed Messages

None of these age options match the PNAS article's designation of 46 million years, which corresponds to a Middle Eocene age on the evolutionary fossil chart. Is the lower member of the Kishenehn Formation—the section that has a mosquito fossil with blood proteins—46, 43, 33, 30 million years old, or none of the above? Was it deposited during the Eocene, the later Oligocene, or the still-later Miocene? Secular geologists don't seem too sure.

They *are* certain, however, that standardized fossil and rock layer charts represent real, historical epochs lasting thousands or millions of years.¹² Nevertheless, the evidence does not demand or even fit this concept, which arose centuries ago during the Enlightenment. European naturalists decided that the reason different kinds of fossils are found in different rock layers is because those creatures lived and died in different, ancient eras.^{13,14} In other words, their certainty rests merely on the assumption that fossils were deposited during separate time *eras* rather than deposited in separate *areas* at a similar time.

There is another explanation that does a better job of accounting for fossil distributions. In this scenario, each layer represents a tsunami-like wave that inundated and then deposited plants and animals from particular *ecosystems*, not from particular *times*.



Image credit: Susan Windsor

Secular fossil dating procedures involve complicated loops of circular reasoning. This fossil mosquito with partly decayed blood proteins in its abdomen is not 46 million years old—decay tests clearly indicate this is astronomically unlikely. Its secular age assignment was hand-picked to conform to

This idea is consistent with the presence of at least some modern-looking plants and animals in most of these layers and supports the layering structures shown by fast-flow sediment modeling experiments.¹⁵

Rounding It Out

In review, how was the bloody mosquito fossil's age set to 46 million years? First, the study authors simply

cited what other researchers had said about the Kishenehn Formation's age. And how did those others obtain an age? By matching the fossils in the rock unit to those described on the geologic chart that assigns age ranges to fossils. At some point, radioisotope ages were selected that matched the fossil's charted, evolutionary age range. This way, a separate technique gave the appearance of independent confirmation. Finally, how did they know that those organisms lived in long-ago eras? Because secular scientists have taught generations of students that rock layers correspond to eons that lasted millions of years. Like so many dating procedures, this one merely concludes with what it assumed in the beginning.¹⁶

a deeply entrenched, millions-of-years belief system.

The fossil blood heme pigments look much younger than that, as do the oil and plant heme pigments within the Kishenehn Formation. The central challenge to secular science therefore remains: Could blood really persist for millions of years? Empirical science would say that there's just no way. ●

References

- Greenwalt, D. E. et al. 2013. Hemoglobin-derived porphyrins preserved in a Middle Eocene blood-engorged mosquito. *Proceedings of the National Academy of Sciences*. 110 (46): 18496-18500.
- Schweitzer, M. H. et al. A role for iron and oxygen chemistry in preserving soft tissues, cells and molecules from deep time. *Proceedings of the Royal Society B*. Published online before print November 27, 2013.
- Thomas, B. 2013. A Review of Original Tissue Fossils and Their Age Implications. *Proceedings of the Seventh International Conference on Creationism*. Horstemeyer, M., ed. Pittsburgh, PA: Creation Science Fellowship.
- Clarey, T. 2013. Oil, Fracking, and a Recent Global Flood. *Acts & Facts*. 42 (10): 14-15.
- Curiale, J. A. and S. W. Sperry. 1987. Regional Source Rock Potential of Kishenehn Formation, Northwest Montana. Search and Discovery Article #91038. American Association of Petroleum Geologists. AAPG Annual Convention, Los Angeles, California, June 7-10.
- Ar40/Ar39 ratios from 12 biotite grains yielded the 46.2-million-year age, and fission track analysis of uranium decay from seven zircon crystals showed a 43.5-million-year age. See Constenius, K. N. 1996. Late Paleogene extensional collapse of the Cordilleran foreland fold and thrust belt. *Geological Society of America Bulletin*. 108 (1): 20-39.
- Snelling, A. A. 1999. "Excess Argon": The "Archilles' Heel" of Potassium-Argon and Argon-Argon "Dating" of Volcanic Rocks. *Acts & Facts*. 28 (1).
- Constenius, K. N. et al. 1989. Reconnaissance paleontologic study of the Kishenehn Formation, northwestern Montana and southeastern British Columbia. In French, D. E. and R. F. Grabb, eds. *Montana Geological Society: 1989 Field Conference Guidebook, Montana Centennial Edition*. Vol. 1. Billings, MT: Montana State University, 189-203.
- Durrance, E. M. 1989. *Radioactivity in Geology*. Chichester, UK: Ellis Horwood Ltd., 441. Cited in Woodmorappe, J. 1999. *The Mythology of Modern Dating Methods*. El Cajon, CA: Institute for Creation Research, 28.
- Russell, L. S. 1964. Kishenehn Formation. *Bulletin of Canadian Petroleum Geology. Special Guide Book Issue: Flathead Valley*. 12 (25): 536.
- Monahan, P. A. 2000. The Geology and Oil and Gas Potential of the Flathead Area, Southeastern British Columbia. *Petroleum Geology Special Paper 2000-2*. Brentwood Bay, BC: Monahan Petroleum Consulting.
- The rock layers are real, but their assigned time ranges are not. See Austin, S. A. 1984. Ten Misconceptions about the Geologic Column. *Acts & Facts*. 13 (11).
- Cuvier, G. and E. Griffith. 1830. *The Fossil Remains of the Animal Kingdom*. London: Whittaker, Treacher, and Co.
- Linking Earth layers to epochs generates severe problems, such as how to get oceans to repeatedly cover continents and how to preserve labile carcasses as fossils in a slow-and-gradual context.
- Berthault, G. 2000. Experiments in Stratification. *Acts & Facts*. 29 (10).
- "By assuming naturalism and uniformitarianism, the critic has already merely assumed that the Bible is wrong. He then uses this assumption to conclude that the Bible is wrong. His reasoning is circular." See Lisle, J. 2010. *Discerning Truth*. Green Forest, AR: Master Books, 24.

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THE RED RECORD

JOHN D. MORRIS, PH.D., WITH BRUCE MALONE

Flood narratives abound in cultures around the world. Creation speaker and scientist Bruce Malone alerted me to one of these accounts in a fascinating translation and history by David McCutchen that documents a clear and detailed Flood tradition. *The Red Record: The Wallam Olum* presents a “written” history of the Lenni Lenape, or Delaware tribe, a large group of Native Americans that played a prominent role in colonial times.¹ A majority of the work chronicles interactions between the European settlers and the tribe. But the earlier sections deal with their view of the origin of all things in a “very good” state, how that state was then lost due to evil, the resulting worldwide Flood, and the migration of their ancestors from the Old World to the New while enduring ice-age conditions.

Predictably, certain details are vague and questionable but also intriguing and potentially valuable. First surfacing as a series of linear symbolic annotations on prepared bark tablets, the narrative was arranged into “books.” The symbols are both pictorial and cryptic, making precise translation difficult. The tablets became accessible to the outside world in 1820 when an itinerate doctor chanced upon a village of ill and dying Delaware Native Americans. He was able to nurse some back to health, and as a way of expressing their gratitude—and through fear that their history might be lost—they entrusted him with their sacred records. In 1822, the documents passed to the scholarly Frenchman Constantine Rafinesque, who translated them as best he could, making primary use of language notes compiled by Moravian mission workers.

The Delaware Native Americans’ record lay in obscurity until republished in 1954 by the Indiana Historical Society under the title *Walam Olum or Red Score: The Migration Legend of the Lenni Lenape or Delaware Indians*.² The history was subsequently declared by tribal elders to be authentic and representative of their oral stories.

The three following columns outline *The Wallam Olum*’s original etchings, McCutchen’s translations, and parallel events from the book of Genesis’ correct history, which I have noted. This finding is consistent with what historian Bill Cooper wrote: “It was commonly found by missionaries all over the world that the people they encountered knew about the Flood already. Their knowledge of it... was startlingly in agreement with the Book of Genesis.”³ Secularists

who claim all Flood legends are myths bear the burden of explaining how so many different people groups retained accounts that so closely overlap the Genesis record. ●






References








1. McCutchen, D., trans. 1993. *The Red Record: The Wallam Olum*. Garden City Park, NY: Avery Publishing.
2. The complete title of the 1954 edition was *Walam Olum or Red Score: The Migration Legend of the Lenni Lenape or Delaware Indians, a New Translation, Interpreted by Linguistic, Historical, Archeological, Ethnological, and Physical Anthropological Studies*.
3. Cooper, B. 2012. *The Authenticity of the Book of Genesis*. Portsmouth, UK: Creation Science Movement, 166.

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BOOK ONE—The Creation of Life

| Symbol | Translation | Corresponding Genesis Note |
|---|---|--|
|  | At the beginning The sea everywhere Covered the earth | Day One: In the beginning, everything was water (Genesis 1:1-2; 2 Peter 3:5). The Spirit moved on the waters (Genesis 1:2). |
|  | Above extended A swirling cloud And within it The Great Spirit moved | Day Two: God separated the waters above from the waters beneath (Genesis 1:6-8). |
|  | Primordial Everlasting Invisible Omnipresent The Great Spirit moved | Day Two: The eternal, omniscient, omnipresent, transcendent Godhead created. |
|  | Bringing forth The sky The earth The clouds The heavens | Day Three: The earth was called forth from the watery matrix (Genesis 1:9-10). |
|  | Bringing forth The day The night The stars | Day Four: The heavenly bodies were created (Genesis 1:14-18). |





| Symbol | Translation | Corresponding Genesis Note |
|--|--|---|
|  | Bringing forth all Of these to move in harmony | Creation was accomplished in orderly progression. |
|  | Again The Great Spirit Created The creator spirits | God created breathing, blood- filled, conscious life (Genesis 1: 20-25). |
|  | Living beings Immortals The Souls [for] Everything | Animals possess a “soul,” as does man, but not man’s eter- nal spirit. |
|  | Then the Spirit Ancestor Grandfather Of Men | God created man in His image (Genesis 1:27). |
|  | Gave The First Mother Mother of Life | God created woman from man (Genesis 2:22). |
|  | [Who] gave the fish Gave the turtles Gave the beasts Gave the birds | Adam named the land animals and birds (Genesis 2:19-20). He had “dominion” over them (Genesis 1:28). |
|  | But the bad spirit Brought forth Bad creatures The snakes and Sea monsters | In Genesis things were “very good” (Genesis 1:31). Here, <i>The Wallam Olum</i> documents that evil was present. |

BOOK TWO—The Coming of Corruption

| | | |
|---|--|---|
|  | Those ancestors The first men Were alone The first women Were brought them | Adam and Eve were alone until children (Genesis 4:1). |
|  | Hungry for The first food Those ancestors Gathered it | God provided their food (Gen- esis 1:29; 2:8-9). |
|  | All were delighted All were carefree All were happy | Life was good for all, with no death, pain, or hardship. |

| Symbol | Translation | Corresponding Genesis Note |
|---|--|---|
|  | But then Very secretly At the end An evil snake A sorcerer Came to the earth | Satan entered the Garden, starting evil’s reign (Genesis 3). |
|  | Wickedness Wrongfulness Criminal acts These came there | Evil distorts all of life. |
|  | All of this Was long ago In the land beyond The great flood The first world There was | All of this happened soon after creation, before the great Flood. |

BOOK THREE—The Deluge

| | | |
|---|--|---|
|  | Long ago In the time of the Mighty Serpent Were the men [and] Evil beings | Corrupted by their Satan- inspired choice, humans turned to evil. |
|  | They both fought They both did wrong They both had no peace | Violence dominated. |
|  | Flooding and flooding Filling and filling Smashing and smashing Drowning and drowning | God’s decision to destroy evil man was just (Genesis 6:17). The Flood was unimaginably catastrophic (Genesis 7:18-23). |
|  | At Turtle Island Was Nenabush The great hare Grandfather to Life Grandfather of humanity | When the Flood ended, life began anew (Genesis 8:18-19). |
|  | After the Flood The Lenape, the True Men The Turtle People Were crowded together Living there in cave shelters | Continued renewal of life after the Flood (Genesis 8:18-19). |
|  | Their home was icy Their home was snowy Their home was windy Their home was freezing | Ice Age begins. |
|  | To the north slope To have Less cold Many big-game Herds went | Migrated to North America. |

Runaway Subduction and Deep Catastrophic Earthquakes

T I M C L A R E Y , P H . D .

A magnitude 8.3 earthquake recently struck deep below the Sea of Okhotsk in the Kuril-Kamchatka subduction zone just south of the Russian Kamchatka Peninsula and 950 miles north of Japan. It ruptured along a 110-mile-long fault about 378 miles below the surface where the Pacific Plate is being subducted, or pulled down, beneath the ocean crust.¹ Though it's been hailed as the largest deep earthquake ever recorded, the Okhotsk upheaval pales in comparison to the earthquake activity suspected during the great Flood. However, it does provide an excellent model of what may have transpired at the time of that catastrophic event long ago.

What perplexes scientists the most is the earthquake's great depth. Publishing in the journal *Science*, Lingling Ye et al. noted, "The occurrence of earthquakes in the depth range from 400 to 720 km [250 to 450 miles] (the mantle transition zone) has long been enigmatic, given the immense pressure exerted by the overlying rock mass on any fault surface."¹

The velocity of the rupture was also surprising, given that it transmitted the energy away from the focus at 4.0 to 4.5 kilometers per second—nearly 10,000 miles per hour! Geologists generally believe when dehydration reactions release water trapped in sediments that it reduces the stresses and pressure on rocks at shallower depths (30–250 miles), allowing for fluid-assisted earthquake movement.¹ However, at depths below 375 miles scientists aren't confident as to what initiates incidents like the Okhotsk earthquake. They speculate that deep faults may shift as original fault-slip leads to frictional melting. This would create the runaway, or out of control, expansion of ruptures and subduction, the pulling under of plates. A cold-subducted plate may have been the key factor in allowing the Okhotsk earthquake to occur at such a great depth, according to the *Science* authors. The cooler, more brittle nature of the plate possibly allowed this event to behave like a shallower earthquake.¹ Frigidity of the plates also indicates they had been subducted only a short time ago—if it had been millions of years they would be much closer to the temperature of the surrounding mantle.

John Baumgardner has proposed a similar model of runaway subduction as the driving mechanism for the great Flood. He pointed out that the pre-Flood seafloor was evidently completely destroyed during the year-long event and rapidly replaced with today's young igneous ocean crust. He explained that "in regard to the fate of the pre-Flood seafloor, there is strong observational support in global seismic tomography models for cold, dense material near the base of the lower mantle in a belt surrounding the present Pacific Ocean."² This suggests that, during the Flood, cold plates were rapidly pulled down into the mantle, causing a thermal frictional envelope to de-

velop around them by reducing viscosity (fluid-like thickness) in the mantle and "resulting in a sinking rate...higher than would occur otherwise."² And the plates subducted fast enough to create an entirely new seafloor during the year of the Flood.

Although maximum displacement during this recent Russian earthquake was about 9.9 meters (32.5 feet), there is ample geological evidence for some "superfaults" showing offsets greater than 100 meters (328 feet).³ Superfaults are rapid-moving slip events involving large offsets of the rock surfaces.

Perhaps the concept of a "superfault" is best understood by contrast with the notion of a "regular fault." A modern magnitude 9 earthquake occurs on a "regular fault" with [a] displacement distance [of] less than 20 meters and a displacement rate of less than 0.1 meter per second. During the two-minute displacement event, friction on the fault generates heat. On the "regular fault" not enough heat is produced and retained within the interface to allow it to reach at least 1800°F, a minimum temperature needed to melt rock. Instead, the thermal conductivity of the rock around the fault allows the heat of friction to be transferred away from the surface. Rocks are converted to powder along the "regular fault" surface. However, a two-minute event on a "superfault" might have more than ten times the displacement distance and more than ten times the heat generation, allowing rocks to melt. The resulting "superquake" would be extraordinary, like none on Earth that humans have witnessed in historic times.³

The dark-colored, glassy material formed by frictional melting upon the superfault surface is called pseudotachylyte (PST). The presence of PST is considered evidence of high-speed rock movement during superquakes, where displacements occur much faster than during modern, high-magnitude earthquakes. The existence today of superfaults, pseudotachylyte, and superquakes are proof of global catastrophic tectonic activity in Earth's present—and past.³

In our recent paper presented at the Seventh International Conference on Creationism, Steve Austin and I suggested that superfaults, and likewise this deep 8.3 magnitude Okhotsk earthquake, may develop in subduction zones as trapped water becomes supercritical, i.e., undergoes a change in chemical properties, creating a liquefied slurry (thick mixture of water and solids).³

Subduction faults allow an entire seafloor plate to descend deep into the mantle of the earth. In a catastrophic superfault scenario, ocean sediment, ground water, and ocean water descend rapidly. This places ocean sediment and water into extreme conditions, causing them to become supercritical at just 750 degrees Fahrenheit and at pressures equivalent to a depth of only three kilometers (two miles). As friction upon the fault generates melted rocks or PST, the supercritical seawater expands to three times its original volume, loses its

viscosity, deposits salts, and reacts corrosively with minerals on the fault.⁴ A slurry then develops along the fault surface. Perhaps the most significant element in fault dynamics is the expansion effect of supercritical water, which pressurizes and exerts tension on the fault surface. Buoyancy and pressure of the supercritical slurry could force it upward on the fault surface faster than the subducted rocks are descending. The melted silicate rock and supercritical water slurry, combined with the reduction in mantle viscosity around the subducted slab, make catastrophic plate subduction possible.^{2,3}

Do we find any empirical evidence of runaway subduction preserved on Earth's surface today? The answer is yes. Superfaults and associated PST have been found and documented at many locations around the world, including several in subduction zone settings.³ One of these is Pasagshak Point, Kodiak Island, Alaska (Figure 1),

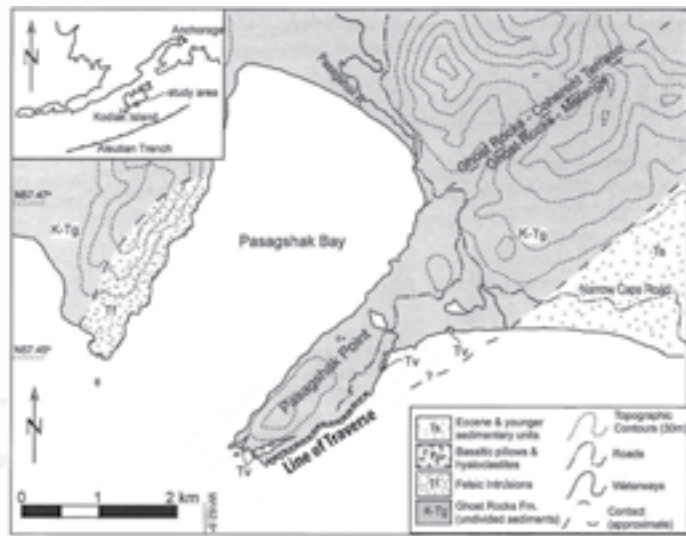


Figure 1. Index map of Pasagshak Point, southeastern Kodiak Island, Alaska, showing line of traverse across inactive subduction zone.

Image credit: T. Clarey et al. *Proceedings of the Seventh International Conference on Creationism*

where the PST is the thickest in the world. Christie Rowe and her colleagues were the first to report PST found there in individual layers exceeding 12 inches, with each inch of PST thought to represent over 30 feet of fault movement.⁵

The PST at Pasagshak Point is found within an inactive subduction zone along the southeastern edge of Kodiak Island. Francesca Meneghini and co-authors refer to these PST layers as “black fault rock” (BFR) (Figure 2). Some of the BFR is described as gray-black to blue-black rock devoid of foliation (i.e., mineral layering), possessing a conchoidal (glass-like) fracture pattern, and exhibiting a satin-smooth luster (Figure 3). The Kodiak Island PST required “extraordinarily large slip” and occurred in “repeated seismic slip pulses,” documenting catastrophic subduction.^{5,6}

Superfaults containing pseudotachylyte, like the one at Kodiak Island, are some of the strongest preserved lines of evidence for the rapid subduction and catastrophic plate tectonic (CPT) activity that occurred during the great Flood. We can see the proof preserved in the rocks, in the seismic tomography, and in complex computer models. All testify of a real, global event that completely overturned



Figure 2. Photograph of exposed black fault rock (BFR) along the line of traverse shown in Figure 1. Black color shows pseudotachylyte (PST) running through brown metamorphic rocks. The PST-rich layer, formed during faulting, shears the underlying metamorphic rocks and exhibits evidence of internal fluid flow. Image credit: T. Clarey



Figure 3. Close-up photograph of PST layers within BFR. Note fracturing is commonly orthogonal to the layering and has an overall resemblance to coal. Image credit: T. Clarey

the pre-Flood seafloor, creating a new world geography, separating the continents, and leaving behind billions of fossils as evidence of the catastrophic conditions that took place during the year-long biblical Flood. Today's large, deep earthquakes like the one near Okhotsk are but small reminders of the watery catastrophe that took place just over 4,300 years ago. ●

References

1. Ye, L. et al. 2013. Energy Release of the 2013 M_w 8.3 Sea of Okhotsk Earthquake and Deep Slab Stress Heterogeneity. *Science*. 341 (6152): 1380-1384.
2. Baumgardner, J. R. 1994. Runaway Subduction as the Driving Mechanism for the Genesis Flood. In *Proceedings of the Third International Conference on Creationism*. Walsh, R. E., ed. Pittsburgh, PA: Creation Science Fellowship, Inc., 63-75.
3. Clarey, T. L. et al. 2013. Superfaults and Pseudotachylytes: Evidence of Catastrophic Earth Movements. In *Proceedings of the Seventh International Conference on Creationism*. Horstemeier, M., ed. Pittsburgh, PA: Creation Science Fellowship, Inc.
4. Hovland, M. et al. 2006. Deep-rooted piercement structures in deep sedimentary basins—Manifestations of supercritical water generation at depth? *Journal of Geochemical Exploration*. 89 (1): 157-160.
5. Rowe, C. D. et al. 2005. Large-scale pseudotachylytes and fluidized cataclases from an ancient subduction thrust fault. *Geology*. 33 (12): 937-940.
6. Meneghini, F. et al. 2010. Record of mega-earthquakes in subduction thrusts: The black fault rocks of Pasagshak Point (Kodiak Island, Alaska). *Geological Society of America Bulletin*. 122 (7/8): 1280-1297.

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

AN *Evening* AT ICR:

REACHING THIS GENERATION FOR CHRIST

When the Institute for Creation Research was founded in 1970, few organizations existed that focused on science and how it relates to Scripture. Back then, face-to-face presentations were the only practical way to communicate our message, and progress was slow at first. But the Lord blessed us, and our ministry grew as Christians began to understand evolution's deception and the vital necessity of ICR's work in defending the faith.

God has wonderfully increased ICR's impact in the decades since. What began as a simple speaking ministry has expanded into a comprehensive outreach enterprise that includes conferences, seminars, online graduate school programs, books, radio broadcasts, and free publications like *Acts & Facts* and *Days of Praise*.

ICR has seen remarkable growth in our online ministries especially, and we now reach millions of people each year through videos, social media, and web news commentary on today's hottest science topics. This rise has been largely attributed to the millennials, today's generation of young adults. Having grown up online, they think and respond much differently than previous generations. Now, smartphones have put the entire media spectrum in the palms of their hands—and have forever changed the way they learn and interact. Traditional communication methods, while still very important, are simply not effective in reaching them. Today's young adults expect more.

ICR recognized we must meet them where they are, and we have been quietly working on a high-quality DVD series designed to engage millennials. After a year in production, the first episode was finally ready. It was time to put on a show!

On a beautiful evening this past No-

vember, ICR threw open its doors to nearly 300 guests for a private screening of Episode One of *Unlocking the Mysteries of Genesis*. As guests arrived at ICR's Dallas campus, they were treated to complimentary valet parking, personally welcomed by members of the Morris family, and ushered into ICR's main building to begin a guided tour of the facilities. Our scientists and staff, stationed throughout the complex, provided visitors with a fascinating look at the work that goes on behind the scenes at the ministry.

Beginning with our "Men of Science, Men of God" exhibit, guests were reminded that many of the founding fathers of science were Christian creationists. The research exhibit on the Mount St. Helens eruptions illustrated the mountain's nickname of "creationist playground," revealing the strong scientific evidence it provides in support of the global Flood. Visitors also had the chance to review renderings of The Museum of Origins and Earth History, the creation science museum we hope to build on our campus one day to showcase our research.

The tour continued with our famous "fossil walk," offering a captivating, up-close look at pristine fossils that show evidence for the Bible's accuracy. Our collection—a magnificent five-foot-long mosasaur skull (from a 45-foot-long marine reptile), our extremely rare and nearly complete juvenile hadrosaur (duck-billed dinosaur), and a fossilized gar fish that shows absolutely no evolutionary change from those you can still catch today—was on display for guests to view.

Visitors were especially excited to learn that carbon-14 testing on ICR's partially fossilized paddlefish confirms that it is only thousands—not millions—of years old! Similar carbon-14 testing is planned for several other specimens in our collection.

The tour then proceeded through the laboratory, library, and classrooms in our research and education building. Informative displays of current ICR projects lined the hallways, and our scientists and education staff were on hand to discuss ongoing research and answer questions as patrons made their way toward the final destination of the evening.

ICR's distribution center serves as the true "business end" of our ministry, so this was a fitting area for visitors to congregate in and fellowship over light refreshments. Many were impressed by the size of this new facility that the Lord blessed us with



Dr. and Mrs. Henry M. Morris III

last year—paid for in full with no debt that might hinder future ministry. And while they waited for the main event, guests were delighted to examine an intricate nine-foot model of Noah’s Ark currently under construction by ICR employee Ernie Carrasco.

Finally, the doors were thrown open, guests were escorted to their seats, and Dr. Henry Morris III, ICR’s CEO, took the stage to thank everyone for coming and briefly introduce the episode. Then the lights were dimmed and the screen was illuminated. The show was about to begin!

Over the next 22 minutes, guests were fascinated by the high-definition sights and sounds of “Chaos or Creation?” the first episode of the *Unlocking the Mysteries of Genesis* DVD series. Did life originate by chance through random evolutionary processes? Or does the evidence indicate purposeful design? Using stunning visuals and solid science—with a little humor thrown in along the way—episode host Markus Lloyd masterfully leads the viewer through a series of thought-provoking questions and hands-on demonstrations. Interspersed with marvelous footage of real-life examples, fabulous scenery, and interviews of ICR scientists,

the DVD shows viewers the evidence for purposeful design all around us. And the attributes of the Great Designer are “clearly seen, being understood by the things that are made” (Romans 1:20).

As soon as the episode concluded, the audience broke into enthusiastic applause while Dr. Morris took the stage again. After publically honoring Markus Lloyd and members of the production team, Dr. Morris began his closing remarks by sharing the main reasons ICR has chosen to pursue this special media project:

Young people today are exposed to an unprecedented amount of influence from the secular world. But much of what they see and experience undermines the biblical worldview. Too often, their questions about creation and science are left unanswered...and many walk away from faith altogether. We believe resources like *Unlocking the Mysteries of Genesis*, designed to appeal to this generation in a way never attempted before, are necessary to be effective witnesses for Christ in the world today.

Unlocking the Mysteries of Genesis is a truly groundbreaking 12-part DVD series that presents compelling scientific evidence confirming the truth found in Genesis. Designed to help the Church engage the next

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generation, this innovative series will dispel the myths surrounding creation and evolution and equip young people with answers that affirm and defend their faith.

A few generous supporters provided the necessary seed money to launch this major project. ICR is currently in production on the remaining 11 episodes, and, Lord willing, we hope to complete the series later this spring. But we need your help to finish the course.

Please consider making a generous gift today to help ICR complete this unique media project. For more information and a preview of this new series, please visit www.UnlockingTheMysteriesOfGenesis.org. Your tax-deductible donation will make a bigger difference than you might imagine—and will be put to effective use in reaching this generation for Christ.

As always, we only move forward as God provides through you. Thanks in advance for your help. ●



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



Members of the Morris family



Dr. Morris introducing Unlocking the Mysteries of Genesis



Markus Lloyd and Dr. Morris

The Truth Test

Truth and consequences go together—how we handle a test of truth produces a consequence. Think what it must have been like when Joseph of the Old Testament, disguised as an Egyptian leader, put his brothers to the test, setting up Benjamin for potential imprisonment. How did the other brothers react to the crisis Joseph imposed upon them? Picture them squirming and sweating when their own brother challenged them in Genesis 42–44. Would they abandon their youngest brother Benjamin in his time of dire need and try to escape with an “every man for himself” attitude?

When people are put to the test, observers are curious about the outcome: Will there be success or failure? Will the global-warming alarmists be vindicated or humiliated? Will those parents give up on their wayward child or, like Motel 6, “leave the light on” for them? Will the Minnesota Vikings have another losing season? Will the teenager give in to peer pressure or stand for what is right? Will the trial witness shine with valiant veracity and careful consistency or crumble with unreliable inconsistency and deceptive duplicity?

What happens when God gives us the truth test?

God provides evidentiary proof of His

creatorship to mankind. Some may think that they, like Pontius Pilate, are putting the Lord on trial as they decide what to do with His creation evidences, but *they are the ones on trial*—He is testing them.

When skeptics choke on the idea of acknowledging how creation proves God’s workmanship, He gives them over to a “debased mind” (Romans 1:28). There is a logical connection between disapproving God’s creatorship and being abandoned to a corrupted mind. That connection is rooted in a New Testament Greek verb, *dokēō*, because two words in Romans 1:28 derive from it:

And even as they did not like to retain [*ouk edokimasan*, literally “did not approve”] God in their knowledge, God gave them over to a debased [*adokimon*, literally “unapproving”] mind.

The common root verb, *dokēō*, means “to approve,” i.e., to accept the proof of. It denotes the following two-step process: 1) considering the available evidence and 2) accepting the truth of whatever the reliable evidence shows. In English, we have the related words “prove,” “proof,” “probate,” “probative,” “approve,” and “approrate.” Like the Greek, these terms point to mankind’s mental ability to reasonably recognize and weigh evidence, using analytical logic for arriving

at sound evaluations. But this ability is corruptible and is damaged whenever the clear proof of God’s creatorship is irrationally disregarded.

Biblically speaking, a “debased mind” is a mind that can’t discern what is right, true, or good—it is morally corrupt and deprived of good judgment. The tragic and terrible reality is that being given over to a debased mind is not a punishment that follows death; it is a consequence in the here-and-now. So truth is exchanged for a lie, and good is exchanged for evil. In this “mental leprosy,” people lose the ability to recognize correct information even to the point of self-destruction.

Throughout this temporal life we often watch people put to the test regarding the proven truth of God’s creatorship. Beyond merely “honoring God with their lips,” will they genuinely honor God as Creator, or will they cave in to popular evolutionary worldview peer pressure? God tests everyone with His truth and its proof but provides all of the answers and evidence in His Word and His amazing creation. ●

(Adapted from ICR’s School of Biblical Apologetics [SOBA] online program.)

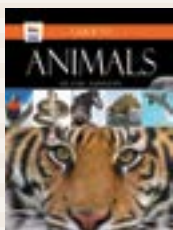
Dr. Johnson is Associate Professor of Apologetics and Chief Academic Officer at the Institute for Creation Research.





You have brought a deeper understanding of why creation is important to Christianity. Your website is awesome, and I share [it] with some of my friends, and they are quite amazed by it.

— C.J.



Wow! *Guide to Animals* looks spectacular. I will certainly be purchasing a copy. It is nothing short of what I have come to expect from ICR—un-

compromising scientific facts from the true biblical perspective.

— K.B.



We praise the Most High God for your ministry. We thank Him for the materials we have received freely from you, *Acts & Facts* and *Days of Praise*.



Both of these materials have changed

our lives and have encouraged us. It is thrilling to know your organization exists to pronounce the gospel in such a clear, concise, and intelligent manner.

— J.S.

I just wanted to express our appreciation to ICR for visiting Calvary Chapel in California. We listened to Dr. Nathaniel Jeanson speak with regard to debunking evolution,

and it made my boyfriend [who embraces atheistic teachings] really question his scientific views on the earth and humans. I am a student, and I wish [my] university would teach some truth about creation in their classes. There are over 150 students in my general chemistry class, and we just accept whatever is taught to us by the secular professors. I am going to send an issue of [*Acts & Facts*] to the university ISP director, and hopefully ICR can host an event for the undergraduate and graduate students.

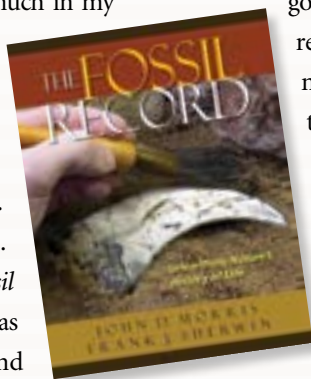
— K.N.



My husband and I just finished watching the *Your Origins Matter* webcast. Thank you for one of the most enjoyable days I have had in a long time. It was so well put together, and I really appreciate all that ICR did. I was touched, inspired, and encouraged.

— K.P.

I only learned this year of your organization's existence, but I would like to thank you for your awesome work. You have already helped me so much in my faith journey. A short time ago, author Frank Sherwin came to speak at a Baptist church...and I attended every one of [his] lectures. They were wonderful... I bought a copy of *The Fossil Record*. At a young age, I was infatuated with dinosaurs and dragons, [but] I was indoctrinated with the "65 million years" evolutionary perspective and even remember a childhood dinosaur video that made a joke about how some people thought that dinosaurs died out in Noah's Flood.



Everyone [acted as if] that was ridiculous because all the scientists agreed that "dinosaurs and people never coexisted." As I got older, I became an avid reader of various science magazines, which all held the evolutionary worldview. While I held fast to my beliefs, I accepted that the dinosaurs' place in Genesis would remain a mystery, and I always had a bit of a difficult time reconciling apparent contradictions between the fossils and the Bible. Could so many scientists really be wrong about fossils? What about radiocarbon dating? Not to mention the ages of galaxies, planets, etc.! I've been devouring *The*

Fossil Record—it has been so wonderful, packed full of information and addressing all the big questions I secretly held about the Bible, evolution, and the fossil record. I just started going full-time to college this fall and am taking a geography course. It makes me smile to think of what REALLY happened...to form the mountains and oceans and valleys. At the same time, I have been realizing more fully just how dire a spiritual situation so many people live in—their values and whole lives are totally influenced by ignorance about who they are, where they came from, and where they are going. Thank you so much for all your work to provide solid, tangible, scientific evidence that points to the truth.

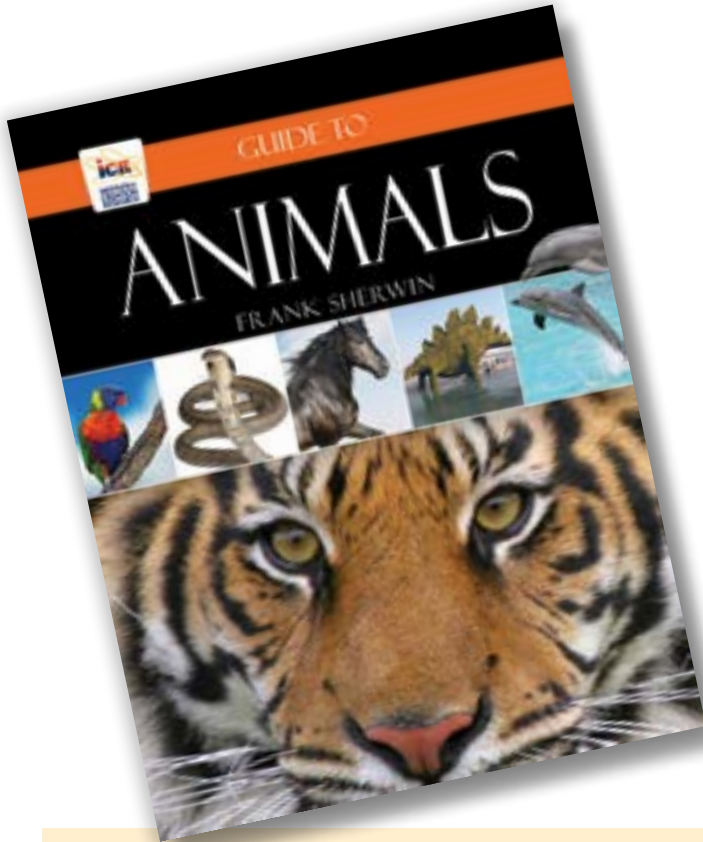
— A.



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