

# ACTS & FACTS

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2026

## Criticizing a Perfectly Engineered Eye: Evolutionists Humiliate Themselves

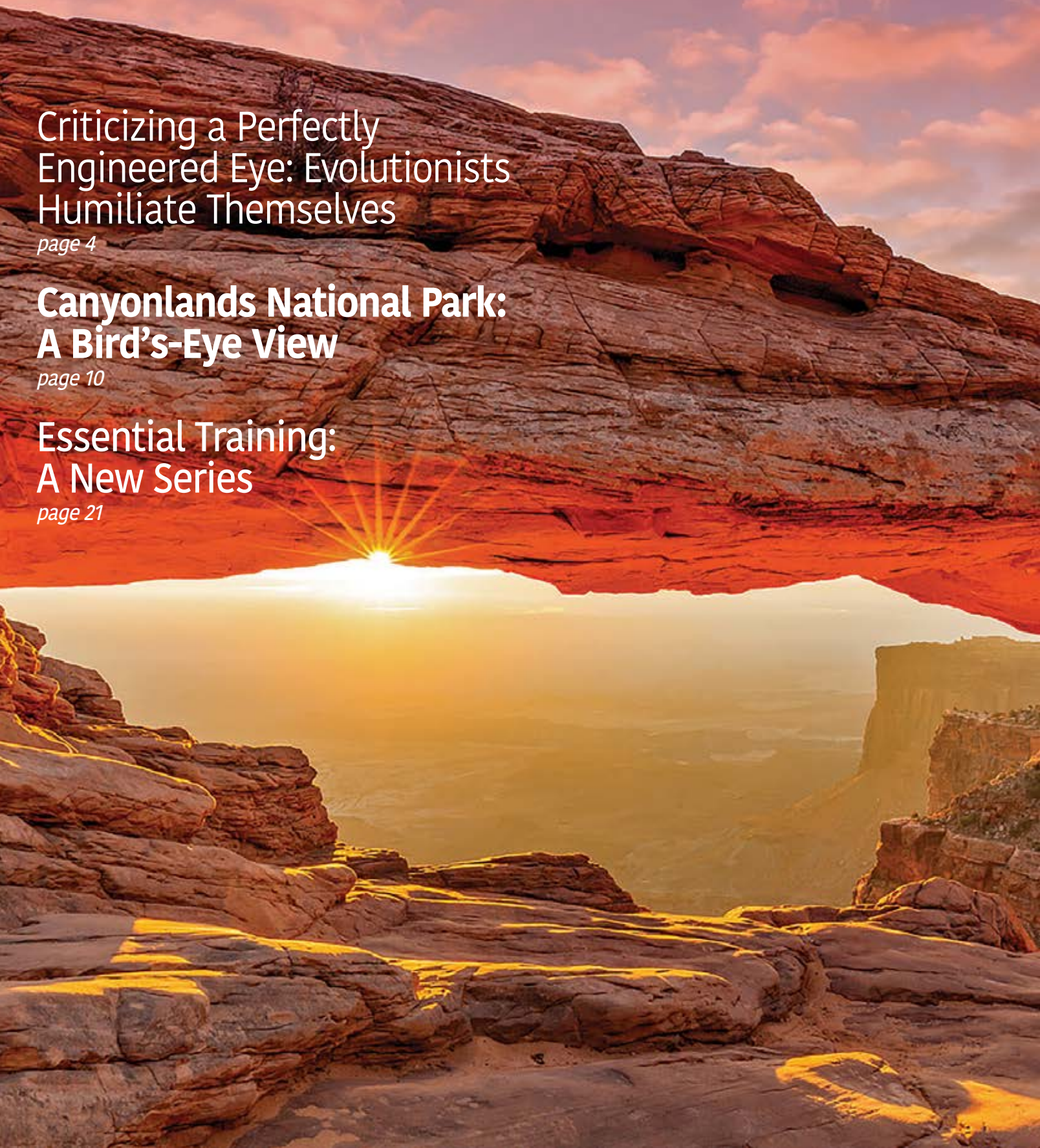
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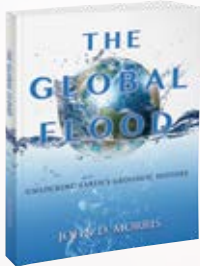


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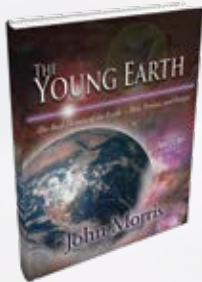
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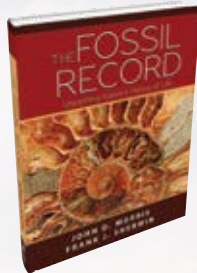
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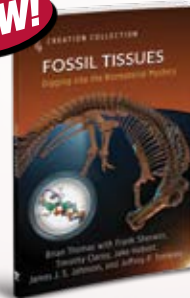
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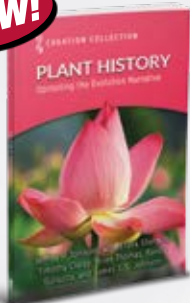
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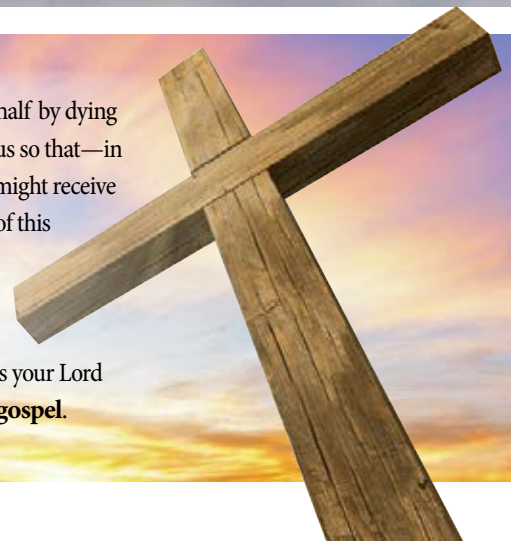
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#### DESIGNER

Dennis Davidson

[Jesus Christ] is the image of the invisible God, the firstborn over all creation. For by Him all things were created that are in heaven and that are on earth, visible and invisible, whether thrones or dominions or principalities or powers. All things were created through Him and for Him. And He is before all things, and in Him all things consist. And He is the head of the body, the church, who is the beginning, the firstborn from the dead, that in all things He may have the preeminence. For it pleased the Father that in Him all the fullness should dwell, and by Him to reconcile all things to Himself, by Him, whether things on earth or things in heaven, having made peace through the blood of His cross.

(Colossians 1:15-20)

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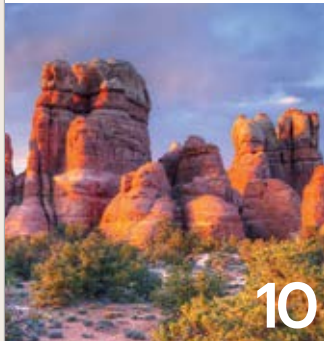
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# Criticizing a Perfectly Engineered Eye Evolutionists Humiliate Themselves

R A N D Y J . G U L I U Z Z A , P . E . , M . D .

Updated and modified from Guliuzza, R. J. 2016. Major Evolutionary Blunders: Evolutionists Can't See Eye Design. *Acts & Facts*. 45 (10): 16–18.

## article highlights

- Evolutionary theory assumes organisms are poorly designed.
- Darwinists look for flaws in eye design and believe they've found one in the retina, claiming that it's wired backwards.
- But these assertions are based solely on evolutionary assumptions, not evidence.
- The human eye displays engineering so optimal and sophisticated that the evolutionists' assessment of its supposed flaws is profoundly embarrassing.
- All creative credit goes to the Engineer, the Lord Jesus Christ.

**R**obert H. Goddard was a visionary trailblazer in modern rocketry. He built the first liquid fuel rocket, launched the first rocket payload, and received 214 patents. NASA lauded his accomplishments: “Now known as the father of modern rocketry, Goddard’s significant achievements in rocket propulsion have contributed immensely to the scientific exploration of space.”<sup>1</sup>

Despite his impeccable scientific work, Goddard was treated shamefully by newspaper reporters who, by comparison, understood nothing about rocketry.

In 1920, the Smithsonian published his original paper, ‘A Method for Reaching Extreme Altitudes,’ in which he includ-

ed a small section stressing that rockets could be used to send payloads to the Moon. Unfortunately, the press got wind of this and the next day, the *New York Times* wrote a scathing editorial denouncing his theories as folly. Goddard was ridiculed and made to look like a fool.<sup>1</sup>

This editorial foolishly mocked Goddard by insinuating he knew less than a high school student. These newspaper reporters were incredibly arrogant and had overestimated their own self-importance, leading them to criticize a man clearly out of their league. What do they have in common with scientists today who are writing error-laden articles ridiculing God’s engineered biology? A lot. One word sums up both: folly.

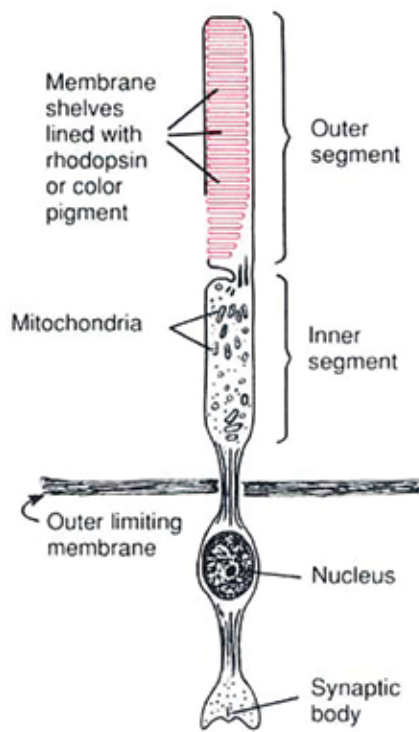
In 1920, editors failed to reign in reporters from printing opinions on space flight, about which they knew little. Similarly, books and articles by poorly informed evolutionists peddling criticisms that biological organs like the human eye are poorly designed slip through the review of evolutionary biologists today. Some include: *The Not-So-Intelligent Designer* by Abby Hafer, *Human Errors* by Nathan Lents, or astrophysicist Neil deGrasse Tyson's "Stupid Design" argument.<sup>2</sup> Does scientific evidence justify their assertions or expose them as unscholarly bluster about biological systems they don't understand?

### Evolutionists Play "Gotcha" with God: Human Eyes Are "Wired in Backwards"

Evolutionary biologists suppose that organisms evolved bit by bit over long ages in ruthless struggles to survive. They visualize a purposeless process where death is embraced as the means of iteratively fractioning out random genetic mistakes to build creatures. Brown University's Kenneth Miller explained how evolutionary beliefs contrast with the position that organisms are engineered by an intelligent Creator: "Though some insist that life as we know it sprang from a Grand Designer's Original blueprints, Biology [*sic*] offers new evidence that organisms were cobbled together layer upon layer by a timeless tinkerer called evolution."<sup>3</sup>

A tinkerer would have made many mistakes—especially compared to the creations of craftsmen. Of all craftsmen, God certainly tops the list. Thus, evolutionary theory predicts organisms are poorly designed. If the biological world is riddled with flawed designs, then evolutionary biologists argue that's powerful evidence for evolutionary tinkering, not the work of God.

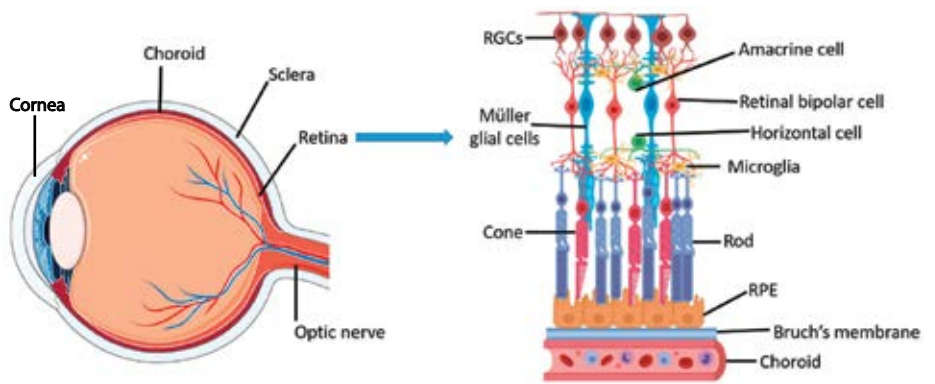
So, evolutionists determined to show that *even human eyes* emerged by tinkering. Cells in your eye that detect incoming light (that engineers would call photodetectors or photosensors) have photosensitive elements at one end and convey that data by a nerve



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

Image credit: Kosigrim, public domain

fiber at the other (Figure 1). In some creatures, the photosensitive elements face incoming light, and nerves exit the back. This arrangement is called *verted*. Other eyes,



**Figure 2.** Enlarged cross section through an inverted retina. Light enters the cornea on the side of the retinal ganglion cells (RGCs) and travels through transparent nerve fibers and nuclei before striking a cone or rod photosensor. The retinal pigment epithelium (RPE) layer handles the high metabolic requirements of photosensors. Very high blood flow through the choroid meets the high energy demands and removes excess heat.

Image credit: Beatrice Belgio et al. CC BY-SA 4.0

including those belonging to vertebrates, are inverted. Here, photosensitive elements face the back, while nerves exit the front. These nerve fibers converge at some location to form the single large optic nerve; they then make a right-angle turn and exit the back of the retina (Figure 2).

Since the evolutionary theory predicts poor design in organisms, evolutionary biologists readily envision supposed design flaws in the inverted arrangement. Richard Dawkins believes anyone can simply look at an inverted retina and see that it's obviously wired backwards. Since he undoubtedly knows some things about engineering, he believes himself skilled enough to make judgments about the bioengineering of eyes, much like how the reporters criticizing Goddard knew some things about physics. Dawkins opines,

Any engineer would naturally assume that the photocells would point towards the light, with their wires leading backwards towards the brain. He would laugh at any suggestion that the photocells might point away from the light . . . yet this is exactly what happens in all vertebrate retinas. Each photocell is, in effect, wired in backwards . . . the wire has to travel over the surface of the retina, to a point where it dives through a hole in the retina (the so-called 'blind spot') to join the optic nerve. This means that the light, instead of being

granted an unrestricted passage to the photocells, has to pass through a forest of connecting wires, presumably suffering at least some attenuation and distortion (actually probably not much, still, it is the principle of the thing that would offend any tidy-minded engineer!).<sup>4</sup>

To Dawkins, creationists—and God—are caught in a dilemma: either God didn't design the human eye, or He made a sloppy mistake.

### “The Eye Shows Poor Design” Becomes an Evolutionary Mantra

Kenneth Miller took the baton from Dawkins, claiming, “Evolution, unlike design, works by the modification of pre-existing structures . . . [it] does not produce perfection.”<sup>3</sup> His example? “The eye, that supposed paragon of intelligent design, is a perfect place to start.” Miller parrots Dawkins' disapproval:

Given the basics of this wiring, how would you orient the retina with respect to the direction of light? Quite naturally, you (and any other designer) would choose the orientation that produces the highest degree of visual quality. No one, for example, would suggest that the neural wiring connections should be placed on the side that faces the light, rather than on the side away from it. Incredibly, this is *exactly* how the human retina is constructed.<sup>3</sup> (emphasis in original)

The former president of the American Association for the Advancement of Science, Francis Ayala, joined the parade. For more effect, he started claiming that visual *problems* were caused by poor design: “Moreover, we know that some deficiencies are not just imperfections, but are outright dysfunctional, jeopardizing the very function the organ or part is supposed to serve. In the human eye, the optic nerve forms inside the eye cavity and creates a blind spot as it crosses the retina.”<sup>5</sup> Then in a broad-brushed flail against the Creator, he pronounced that “it is not only that organisms and their parts are less than perfect, but also that deficiencies and dysfunctions are per-

vasive, evidencing ‘incompetent’ rather than ‘intelligent’ design.”<sup>6</sup>

Joining “the eye is wired backward” chant while also mocking God was the zoologist and evolutionary biologist Dr. Abby Hafer. She claimed the human eye would deserve an “F-grade in any decent design class.”<sup>7</sup> An increasingly vocal denigrator of real biological design is the physiologist and evolutionary biologist Dr. Nathan Lents. He summed up evolutionary biologists' ridicule by alleging that all of “human anatomy is a clumsy hodgepodge of adaptations and maladaptations.”<sup>8</sup>

### Science Literature Doesn't Confirm Dysfunctional Eyes

But Ayala doesn't document his claim that the human retina is dysfunctional. Nor would an online search of scientific literature show that neuroscientists are identifying any type of dysfunction. Like Dawkins, Miller honestly admits that there's no evidence of dysfunction: “None of this should be taken to suggest that the eye functions poorly. Quite the contrary, it is a superb visual instrument that serves us exceedingly well.”<sup>3</sup> By objective standards the eye is superb. But apparently the eye couldn't be engineered because it's not built the way Miller thinks

it should be: “The key to the argument from design is not whether or not an organ or system works well, but whether its basic structural plan is the obvious product of design. The structural plan of the eye is not.”<sup>3</sup>

Scientific literature published concurrent with the assertions of Dawkins, Miller, Hafer, and Lents included thousands of articles describing complex biological systems, with each having multiple parts working purposefully together. In this sea of documented biological complexity and absence of documented poor performance, evolutionary biologists' contentions of poor eye design ring hollow.

### Bad Design or Optimized Design?

Simply put, if our eyes were built according to the opinions of evolutionists, we'd all be blind. There is no excuse for this blunder. When they were writing, there was abundant information about how retinal tissues marvelously address competing physical challenges to convert light fluctuations into useful information.

Engineers regularly need to satisfy numerous competing interests concurrently. A hallmark of sophisticated engineering is deriving solutions to several conflicting demands in a single optimized design.<sup>9</sup>



A view inside the human eye showing the retina optic nerve and macula

Dawkins and the others never discuss eye optimization. Since the performance of *one* particular trait isn't maximized, then it's irrelevant to them to investigate the entity as a whole. This practice leaves them ignorant of good reasons for design tradeoffs and keeps them from recognizing other factors that need research.

For human eyes, an inverted retina optimally balances a minimum of five major factors for the retina to work properly.<sup>10</sup> Photosensors must be inverted and embedded in the retinal pigment epithelium (Figure 2). This vital tissue removes waste from rapidly regenerating photosensors and helps remove heat.<sup>11</sup> Its black granule pigment stops light from scattering. The choroid's extensive network of blood vessels supports the high metabolic needs of photosensors and functions like a car radiator to absorb additional heat.<sup>12</sup> Researchers have known for decades that the layer of "uninsulated" nerve fibers that leave photosensors are transparent.<sup>13</sup> In addition, retinal Müller cells conduct light from front to back like fiber optic cables. One paper described their remarkable properties to include "the increasing refractive index together with their funnel shape at nearly constant light guiding capability [which] make them ingeniously designed light collectors."<sup>14</sup> Thus, light-sensitive molecules detect light regardless of which way the retina is oriented.

### Claims of the Eye's Poor Design Are Spectacularly Wrong

Some of the claims are just amateurish factual mistakes, like Lents' claim that "right smack in the middle of the retina, there is a structure called the optic disc . . . this creates a blind spot in each eye."<sup>15</sup> First-year medical students know that what Lents said would make us mostly blind and that the optic disc *isn't* "smack in the middle" of the visual axis but is offset by about 15° to the nasal side.

One neurophysicist effectively summed up how, "remarkably," human eyes couldn't be more sensitive to light:

"If you imagine this, it is remarkable: a photon, the smallest physical entity with quantum properties of which light consists, is interacting with a biological system consisting of billions of cells, all in a warm and wet environment," says [Alipasha] Vaziri. "The response that the photon generates survives all the way to the level of our awareness despite the ubiquitous background noise. Any man-made detector would need to be cooled and isolated from noise to behave the same way."<sup>16</sup>

Another research team simply concludes, "The retina is revealed as an optimal structure designed for improving the sharpness of images."<sup>17</sup> Extraordinary performance prompted another biophysicist to remark, "Photoreceptors operate at the outermost boundary allowed by the laws of physics, which means they are as good as they can be, period."<sup>18</sup>

A report in 2014 about scientific evidence contradicting longstanding claims of poor eye design concludes,


Having the photoreceptors at the back of the retina is not a design constraint, it is a design feature. The idea that the vertebrate eye, like a traditional front-illuminated camera, might have been improved somehow if it had only been able to orient its wiring behind the photoreceptor layer, like a cephalopod, is folly.<sup>19</sup>

Every statement by Dawkins, Miller, Ayala, Hafer, Lents, and others that involves claims that photocells are wired backward and the eye is "outright dysfunctional" is scientifically incorrect.<sup>5</sup> "Folly" accurately describes their blunder.<sup>19</sup> Their mistake exceeds mere expressions of ignorance. Their folly surpasses that of the journalists criticizing the aeronautical genius of Goddard. By asserting that our eye's design isn't what a sensible human engineer would do, these evolutionary biologists audaciously mock God. Their smug ridicule of eye anatomy and their claims that it is Exhibit A for poor design are now embarrassingly exposed as a conceited scientific blunder.

Time and truth go hand in hand. Goddard was right, and the journalists were

wrong. NASA notes that

a day after Apollo 11 set off for the Moon, in July of 1969, the *New York Times* printed a correction to its 1920 editorial section, stating that "it is now definitely established that a rocket can function in a vacuum as well as in an atmosphere. The *Times* regrets the error."<sup>16</sup>

Though greatly belated, the *Times'* humble retraction is honorable. Science shows that God is also due a retraction. 

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Dr. Guliuzza is the president of the Institute for Creation Research. He earned his doctor of medicine from the University of Minnesota, his master of public health from Harvard University, and received an honorary doctor of divinity from Southern California Seminary. He served in the U.S. Air Force as 28th Bomb Wing flight surgeon and chief of aerospace medicine. Dr. Guliuzza is also a registered professional engineer and holds a B.A. in theology from Moody Bible Institute.



**MAY 2**

McGregor, TX  
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**Entrusted Homeschool Conference**  
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**MAY 7-10**

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**MAY 14-16**

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**MAY 25**



### Memorial Day

Join us at the ICR Discovery Center as we take a moment to remember and honor our country's fallen heroes. In recognition of Memorial Day, we are pleased to offer a 20% discount on tickets for both the exhibit hall and the planetarium. We invite you and your family to come explore the incredible wonders of God's creation with us.

**MAY 29**

### *On Thin Ice: Discovery Center*



### Member & Donor Premier

ICR Discovery Center members and ICR donors are invited to the premiere event of our new Ice Age documentary, *On Thin Ice: Revealing the Truth about the Ice Age*. This exclusive evening will provide opportunities to interact with Dr. Tim Clarey and Dr. Jake Hebert, along with hors d'oeuvres, refreshments, and engaging crafts for the family. While this is a free event, please note that registration is required to attend.

**JULY 4**

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AMERICA



Join us this July 4th as we celebrate 250 years of American independence with a special patriotic offer! Admission to the ICR Discovery Center is only \$2.50 for the exhibit hall and \$2.50 for the planetarium—a perfect way for families to celebrate freedom, discovery, and faith together.

**SEPTEMBER 7**

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Enjoy educational presentations, food trucks, a petting zoo, fun activities, and discounted tickets!



**SEPTEMBER 17**

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North Texas Giving Day is a dedicated time to raise awareness and support for nonprofits across the metroplex. This year, we invite you to join this movement by investing in your local museum. Your generous gift to the ICR Discovery Center directly supports our mission to provide God-honoring science education as we work together to minister to the next generation.

### DAY4 ASTRONOMY MEETING

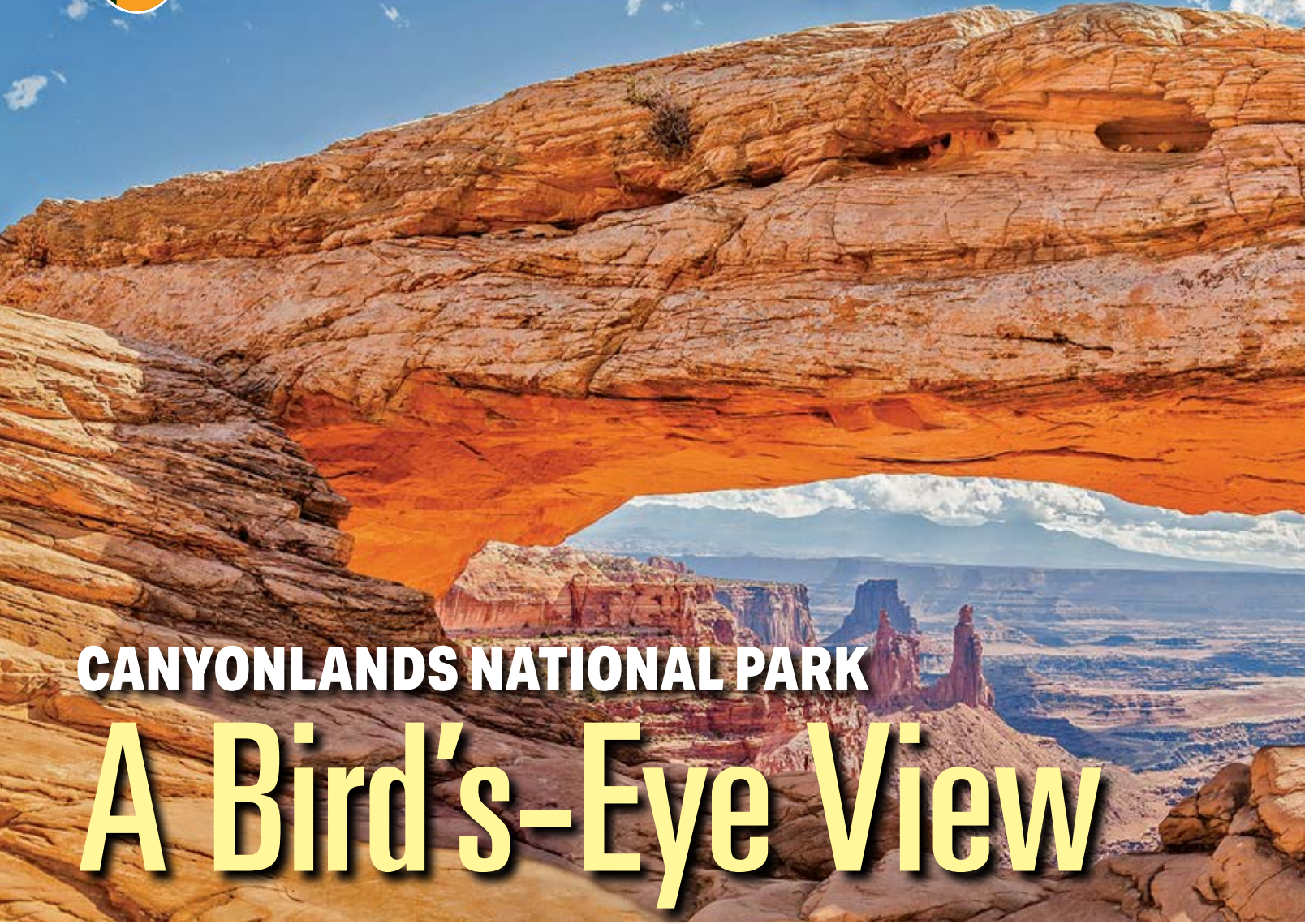
**Third Saturday of each month at 5:00 p.m.**



Grow your faith in Christ while learning astronomy from a biblical worldview.

Free event, no registration is needed.

[info@Day4.org](mailto:info@Day4.org) or 903.692.1111



## CANYONLANDS NATIONAL PARK

# A Bird's-Eye View

Certain overlooks at Canyonlands National Park in eastern Utah make you wish you could soar overhead to see and explore more crannies and canyons. Visitors quickly understand why President Lyndon B. Johnson established Canyonlands as the thirty-second national park in 1964. It protects a wide stretch of impressively water-whittled earth. Today's Colorado and Green Rivers meander

between sprawling tan and red sandstones to remind its desert dwellers that water *does* exist. In 2 Peter 3:1–6, the apostle Peter instructs Christians to treat the Genesis creation and Flood as history.<sup>1</sup> And visitors can get up close and personal with two reminders of these events at Canyonlands—one for each of those miraculous moments.

*The view beneath Mesa Arch reveals Canyonlands' canyonlands. A view from below, looking back, shows Mesa Arch at the top (center) of a stretch of the reddish Navajo Sandstone.*

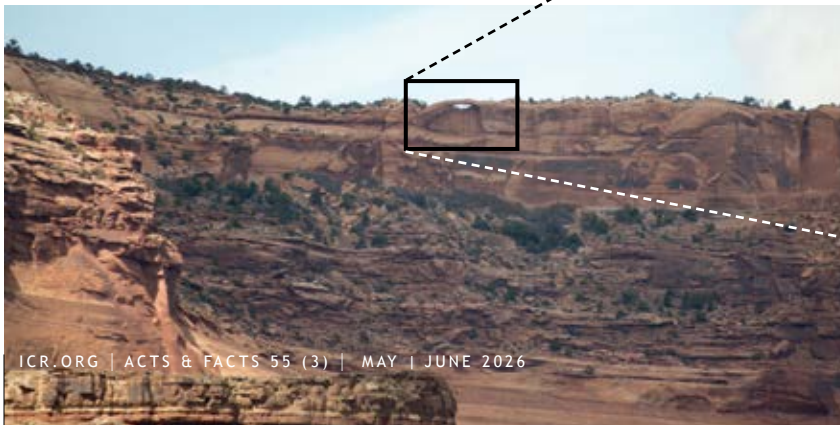


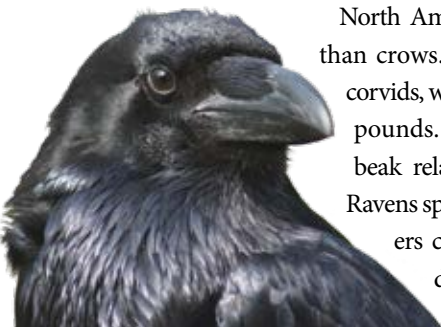
Image credit: NPS

- Ravens inhabit Canyonlands National Park. These problem-solving creatures descended from birds aboard Noah's Ark. These bright birds' communication skills pale in comparison to human language.
- The park's cross-beds appear mysterious. Windblown sand dunes don't create stacked cross-beds, but floodwaters do.
- Canyonlands National Park's ravens and rocks both cry out as witnesses to the creation and the Flood.



### The Raven Kind

When you pull into one of the park's parking lots, a raven may warn its faraway friends about you with its rattle-like, long-distance call. The various species of ravens and crows belong to one genus: *Corvus*. Scientists refer to these birds in the family *Corvidae*, along with other relatives including jays, magpies, rooks, and jackdaws, as corvids. All of today's corvids likely descended from the seven pairs of this particular kind on board Noah's Ark (Genesis 7:3).<sup>2</sup>



Common raven

North American ravens are larger than crows. Ravens are the largest corvids, with some exceeding three pounds. They also have a larger beak relative to their head size. Ravens sport a fluff of throat feathers called hackles that crows don't have. When looking up from the ground, a soaring raven's tail

feathers fan out to a diamond shape, whereas those of the crow look rounded. None of these variations gets in the way of these birds' essential working parts. The Lord Jesus engineered corvids to diversify, fit, and fill.<sup>3</sup>

### Bird Chat

Corvids are smart. Folks who own ravens often teach them to speak human words. The clever birds use their syrinx—something like a double voice box—to mimic sounds that the single voice box (larynx) makes when we humans speak. Among all animals, including dolphins and chimpanzees, ravens and certain parrots have the widest vocabularies.<sup>4</sup> Does that mean these birds talk?

Not at all! Although animals com-



municate one way or another, no animal uses a language. Language is unique to humans. Languages organize symbols according to conventional rules of grammar for the purpose of conveying complete thoughts. Evolutionary biologist Leonardo Birchenall, in reviewing the top-communicating animals, acknowledged that “animals apparently do not intend to convey information to others when communicating.”<sup>5</sup> Well, it’s good to see science catching up with the Bible, which teaches that humans are unique creations, unrelated to any animal. Some of our distinctive characteristics are faith, hope, and language. The Lord created us with everything we need to commune with Him when “God created man in His own image” (Genesis 1:27). So, hearing ravens’ clever calls can remind us of the vast gap between all animals and humans.



*Utah penstemon.*  
*Canyonlands’ unique red tubular flower.*  
Image credit: NPS/Amy Washuta, Public domain

### Pancakes Baked with Cross-Beds

These aren’t the kind of pancakes we can eat! Canyonlands National Park has outcrops of the Navajo Sandstone, a rock formation that contains multiple layers, each one like a colossal pancake. Many of these layers preserve cross-beds. This refers to tilted layering within a flat bed. What caused the sand to get deposited at angles instead of



*Erosion exposes cross-beds in Navajo Sandstone at Canyonlands National Park*  
Image credit: Brian Thomas

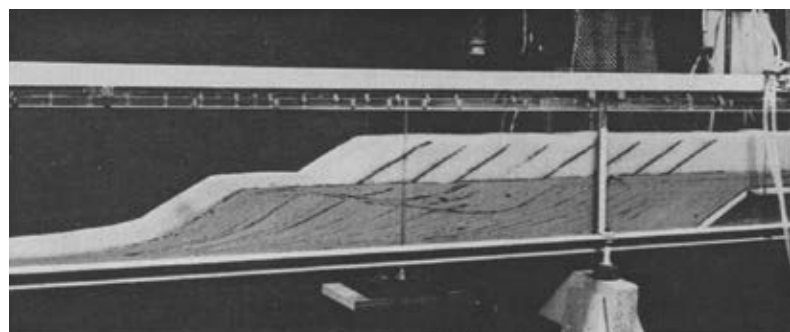
horizontally? Even more mysteriously, what led to each layer’s flat top and the next cross-bedded layer getting stacked atop the one below? Park signage points to ancient desert sand dunes as the cause.

Today’s conventional geologists have no doubt that a series of vast deserts had sand dunes that petrified, one desert atop another, for eons to eventually form the Navajo Sandstone. Creation geologists don’t buy that story for two good reasons.

First, no desert on Earth—not even the Sahara with its enormous, migrating sand dunes—stacks up cross-bedded layers like those in the Navajo and other sandstones. These beds are flat, one atop the other. Nor do we see dunes petrify. Second, geologists were trying decades ago to decide whether water or wind put these patterns there. They did flume experiments, where a pump pushes water and sediment down a track. Water flume sediments best matched the stacked cross-beds found in real rocks.

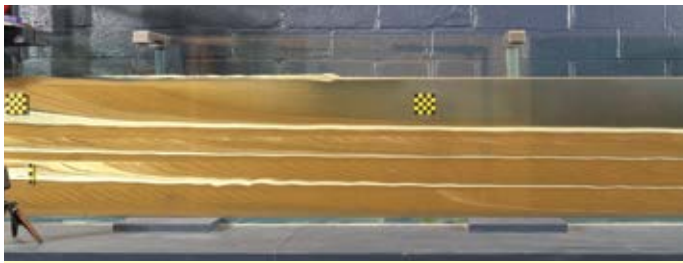


*Stacked cross-beds of the Navajo Sandstone where it outcrops at neighboring Zion National Park, Utah*  
Image credit: Brian Thomas



*Stacked cross-beds from this 1965 flume study match the patterns in Canyonlands rocks, but no desert dunes match those patterns*  
Image credit: National Science Foundation, Figure 11 in Jopling, 1965<sup>6</sup>

Some Navajo Sandstone cross-beds show thin, whitish clay streaks. Sedimentologist Dr. Christopher Rupe tried to replicate this in a recent but not-yet-published flume study. What a great match he found! His collaborative research verified what earlier efforts had discovered: one must raise the water level to stack a new cross-bedded layer atop an older one. What might we expect to find from the progressively rising waters of Noah’s Flood, when “the waters prevailed and greatly increased” (Genesis 7:18)? Stacked cross-beds. What difference does it make to understand these rocks had a watery, not a windy, origin? Well, it affirms the reality of Noah’s Flood, which deposited all these and similar layers across the globe in just one year only 4,500 years ago.<sup>7</sup>



*This flume study resulted in thin clay layers that outlined stacked cross-beds (above), which is seen at a much larger scale in Canyonlands National Park rocks (right)*



Image credit: Brian Thomas

Those keen to defend the two key miracles that Peter teaches Christians to believe—creation and the Flood—need look no further than Canyonlands National Park. Its top-level animal communicators fall short of uniquely human language, reminding us of the truth that God made us in His own image so we can have a relationship with Him. And its stacked cross-beds confront stories about ancient deserts with experimental results that confirm God’s Word about the Flood judgment. Peter was right on, and our culture needs his message more now than ever.<sup>8</sup> 🙏🙏

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8. His argument, in essence, was that since we know that the Creator flooded the world because of wickedness, then we know He will judge the world again. Therefore, everyone should get right with God and stay right!

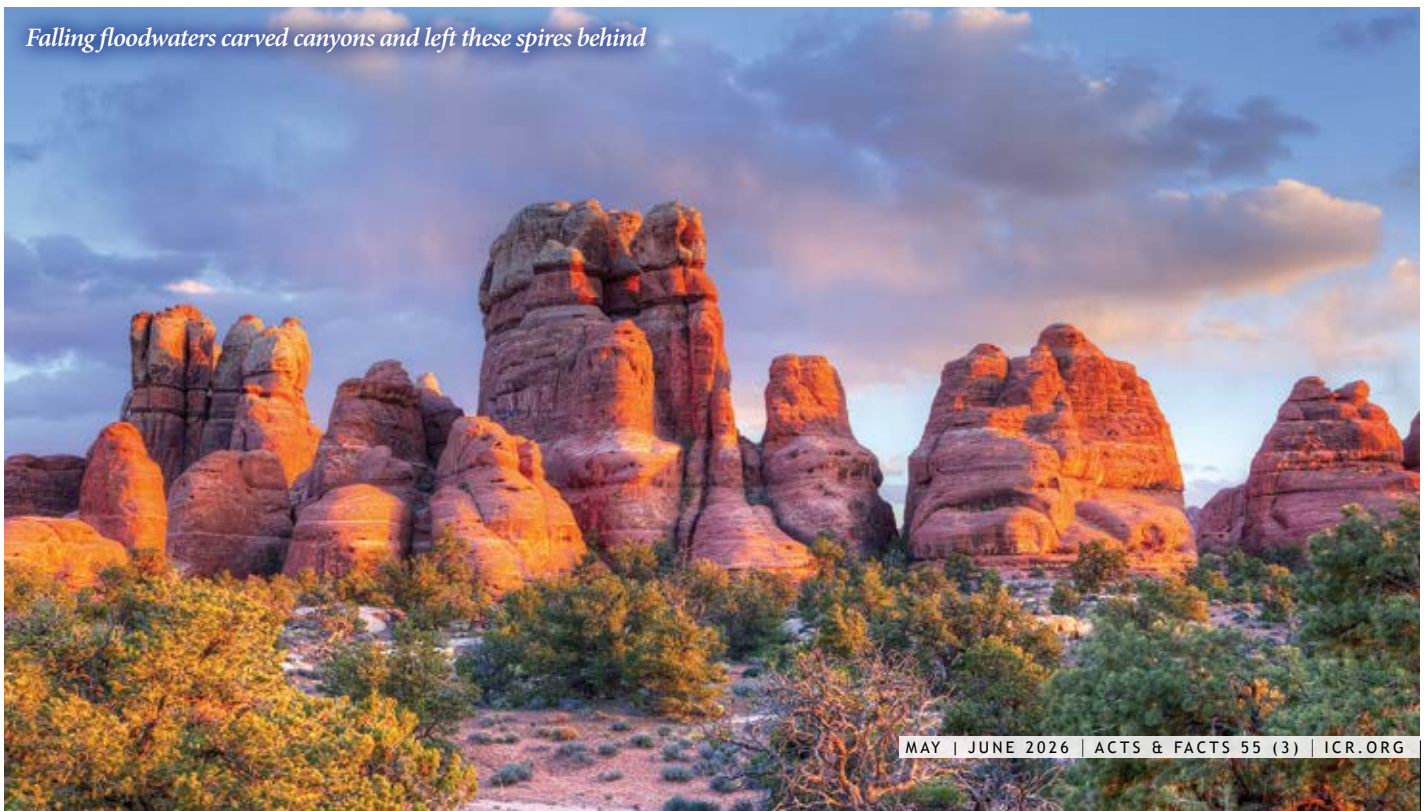


*Dr. Thomas is a research scientist at the Institute for Creation Research and earned his Ph.D. in paleochemistry from the University of Liverpool.*



*A dramatic view from Green River Overlook shows canyons carved by the retreating waters of Noah’s Flood*

*Falling floodwaters carved canyons and left these spires behind*





# Adaptive Trait Variation Conferred by Engineered Genetic Diversity

J E F F R E Y P . T O M K I N S , P H . D .

**G**lobal environments are highly diverse and dynamic, offering many changes and adaptive challenges to creatures. However, DNA sequence variability engineered into plant and animal genomes is one design feature (of many) that allows creatures to rapidly deploy adaptive traits in response to sensing a broad range of environmental conditions.

## article highlights

- Gregor Mendel demonstrated that genes shuffle during breeding and can produce a diverse amount of genetic variability.
- Standing genetic variation (SGV) is an engineered, pre-existing part of each creature's DNA that allows creatures to rapidly adapt to a variety of environments and pioneer new niches. It doesn't emerge through the slow accumulation of random genetic mistakes.
- SGV is strategically exploited when new challenges arise in the creature's environment, leading to rapid diversification.
- Jesus Christ engineered this variability and placed it in organisms when they were created about 6,000 years ago.

## An Introduction to Genetic Diversification

One of the earliest scientists to make big strides in recognizing and understanding DNA variability was Gregor Mendel (1822–1884), an Austrian monk whose work inspired early twentieth-century studies in genetics. He observed certain flower and seed trait variations in the offspring of peas and other garden plants following his controlled matings.<sup>1</sup> In some cases, a progressive continuum of flower color could be noticed in the offspring. In other cases, the traits segregated in seemingly predictable statistical outcomes. We now know these to be simple or qualitative traits controlled by a single gene—a very rare occurrence in nature.

These qualitative traits in pea plant flower color were due to a changed pigmentation-related gene that produced white flowers (no pigment) rather than pigmented purple flowers.<sup>2</sup> Because pea plants, like most animals, have two sets of chromosomes (one from the mother and the other from the father), even if a pea plant had only one good copy of a pigmentation gene, it could still produce purple flowers. If a plant had two copies of the altered gene, white flowers would result.



*White pea flower*

Image credit: net\_efekt, CC BY 2.0

The key thing about Mendel's work was that it demonstrated that genes or other chromosomal features could be shuffled around via matings in a population to create a diverse amount of variability. We also now know that nearly all traits in creatures, especially those that facilitate adaptation, are actually controlled by many genes and regulatory elements

located across the genome at specific sites called loci (singular, locus). Genetic differences between loci variants are called alleles.

The potential for trait variability can be quite large due to the many possible allele combinations contributing to a trait. These types of traits are called polygenic (controlled by many genes) or quantitative traits (as compared to qualitative). These polygenic loci or alleles are typically referred to as quantitative trait loci (QTL) and are all interconnected in complex gene regulatory networks. Each locus contributes to different levels of variability in the trait being studied.

Quantitative traits and QTLs can be characterized in two different ways. The original approach was to perform controlled matings of a plant or animal to create a large population of offspring. Each individual was then characterized for visible traits (phenotypes) and had its genome mapped with DNA markers. Traits associated with a specific set of alleles (marker-connected loci) are determined by statistically analyzing the percent variability they contribute to a certain trait.

As genome sequencing became more common and efficient, this mapping strategy was largely replaced and/or supplemented by sequencing the entire genome of a large sample (cohort) of individuals from a population. Traits of interest are then correlated with variations in genome sequence in what are called genome-wide association studies. In fact, it is now possible to do this with populations from multiple environments. The outcome of such studies reveals both the location and DNA sequence of alleles connected to a variety of traits in organisms inhabiting different environments.

## Creature Diversification

One reason why studying and understanding allele diversity in the genome is important is because it contributes to creature diversification, known by conventional scientists as speciation or adaptive radiation. The genetic foundation for this is realized by extrapolating allele diversity found in a cohort of individuals to an entire population of a creature where the diversity is harbored. Population-level genetic diversity is typically called standing genetic variation (SGV). Diversification occurs when a subsection of a population breaks off and pioneers a new environmental niche, carrying with it a subsection of

the SGV of the founder population. If the breakaway group is small, that can eventually lead to inbreeding, which is detrimental to many types of higher animals but is less so to most plants.

A population shift can also occur if the environment that the founding population lives in is altered in some way. This can lead to a change in genome structures that are better adapted to the new conditions. However, contrary to standard Darwinian predictions, this often does not mean that adaptive variation favorable to the previous environment is lost. It merely isn't predominant in the SGV, so a shift back to the prior condition is still possible. This kind of diversification has been demonstrated by a number of studies, several of which will be summarized in the following sections.

## Examples of Standing Genetic Variation (SGV) in Adaptation

### Cichlids

A stunning array of cichlid fishes have diversified in African lakes. The three largest lakes (Malawi, Tanganyika, and Victoria) contain cichlids that express well-adapted traits to eating plankton, algae, snails, insects, and even other fish. They also have distinct body shapes and coloration.



*Nimbochromis venustus, Lake Malawi, Africa*

Image credit: CC BY-CC 4.0

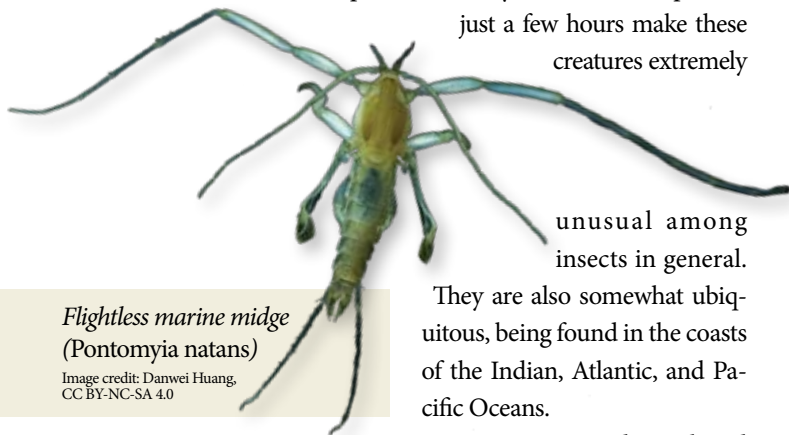
Neo-Darwinism speculates each of these cichlid forms emerged through slowly accumulated random genetic errors that allegedly supported a new beneficial trait that was selected for by the mystical agent of natural selection. However, recent studies have shown that the actual source of this adaptive radiation is preexisting, built-in genetic variation. In fact, the authors of a recent paper on cichlid adaptation wrote, "In summary, we identified genes with divergent alleles that originated before the adaptive radiation of Lake Victoria cichlids, suggesting the importance of SGV in their ancestral radiation of East African cichlids, and not just Lake Victoria cichlids."<sup>3</sup> In other words, the SGV that allowed for the adaptive radiation was ancestral and pre-existing.

Not only does the SGV needed for adaptation preexist, or rather

is pre-engineered and originally placed in creatures at creation by the Creator, but this process of diversification is strategically and repeatedly deployed based on the environment that the cichlid is pioneering. In other words, cichlids adapted to similar environments separated by large amounts of geographic distance and time will deploy similar allelic configurations. This illustrates the repeatable nature of this process. The researchers stated, “It is clear that allelic polymorphisms are shared among different species of Lake Victoria cichlids due to recent adaptive radiation from the ancestral population with SGV,” and “the sharing of allelic polymorphisms is also observed across East African lakes and rivers.”<sup>23</sup> In fact, the researchers go on to more clearly tell us what types of alleles are actually involved in specific modes of adaptation, saying, “The allelic diversity of genes related to sensory perception, including vision and olfaction [the sense of smell], is crucial for rapid speciation, because perception directly contributes to reproductive communication.”<sup>23</sup>

### Marine Midges

Marine midges belong to the genus *Pontomyia*. They are flightless insects that inhabit marine coastal habitats and specifically thrive in the intertidal zone, salt marshes, and tidal pools along ocean shores. Not only are midges unique in that they are specialized insects that develop in saltwater, but their inability to fly, extreme sexual dimorphism, and very short adult lifespans of just a few hours make these creatures extremely



*Flightless marine midge (Pontomyia natans)*

Image credit: Danwei Huang, CC BY-NC-SA 4.0

unusual among insects in general.

They are also somewhat ubiquitous, being found in the coasts of the Indian, Atlantic, and Pacific Oceans.

A recent study analyzed ecotypes of marine midges that have adapted themselves to a North Atlantic European habitat.<sup>4</sup> At extreme northern latitudes, these midges differ from others in their egg-laying behavior and reproductive timing, involving both circadian and circalunar clocks. Circalunar clocks are innately engineered biological time-keeping mechanisms that allow organisms to monitor lunar phases and adjust adaptive mechanisms accordingly. In addition to the circalunar clock aspect, these creatures require their habitat to be exposed by the tide for successful egg laying. So, they live in intertidal zones along the European Atlantic coasts, which are dynamic and fluctuating environments and are maximally exposed during the low waters of spring tide days around the full moon and new moon. The emergence of adults is restricted to these circumstances by the creature’s circalunar clock,

which tightly regulates the processes of development and maturation. This circalunar system also interfaces with an internal circadian clock based on the 24-hour solar cycle. This ensures emergence during only one of the two daily low tides. The adults reproduce immediately after emergence and die just a few hours later.

In this study, the researchers used a technique mentioned previously called QTL mapping. They genetically studied a population derived from a cross between lunar-sensitive and lunar-insensitive strains. As would be expected based on the fact that adaptive traits are complex, the researchers state, “We can conclude that lunar rhythmicity is not controlled by a single large-effect locus, but rather has an oligogenic [multiple genes with large effect] or possibly even polygenic basis [many genes].”<sup>24</sup> They then did even more genetic testing through genome sequencing in the test population. They concluded that “ecotype formation is based on a complex polygenic architecture” and “adaptation in the North involves a re-assortment of existing standing genetic variation.”<sup>24</sup> So, in the final analysis, this complex form of adaptation is based on many different genes and is also rooted in the exploitation of pre-engineered SGV.

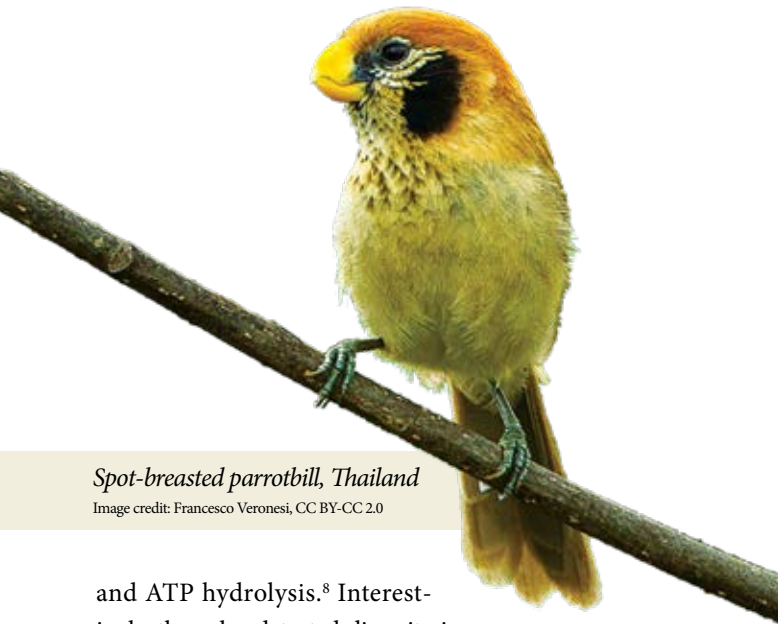


*Pale-billed parrotbill (Suthora atosuperciliaris), China*

Image credit: Sun Jiao, CC BY 4.0

### Parrotbill Songbirds

Parrotbills are small, social birds that live in groups. Although they are found across the world, they are especially prevalent in diverse species/ecotypes across Southeast Asia, China, and Russia. In 2019, a Taiwanese group of researchers studied the sequenced genomes of 80 individuals involved in adaptation at differing latitudes in mainland China and Taiwan. It is noteworthy that the authors state at the beginning of the paper: “What kind of genetic variation contributes the most to adaptation is a fundamental question in evolutionary biology.”<sup>25</sup> In their study, they found significant variability in many different groups of genes involved in the oxygen transport cascade,<sup>6</sup> angiogenesis,<sup>7</sup> respiratory organ modifications, blood hemoglobin content, metabolic processes related to thermoregulation, lipid metabolism,



*Spot-breasted parrotbill, Thailand*

Image credit: Francesco Veronesi, CC BY-CC 2.0

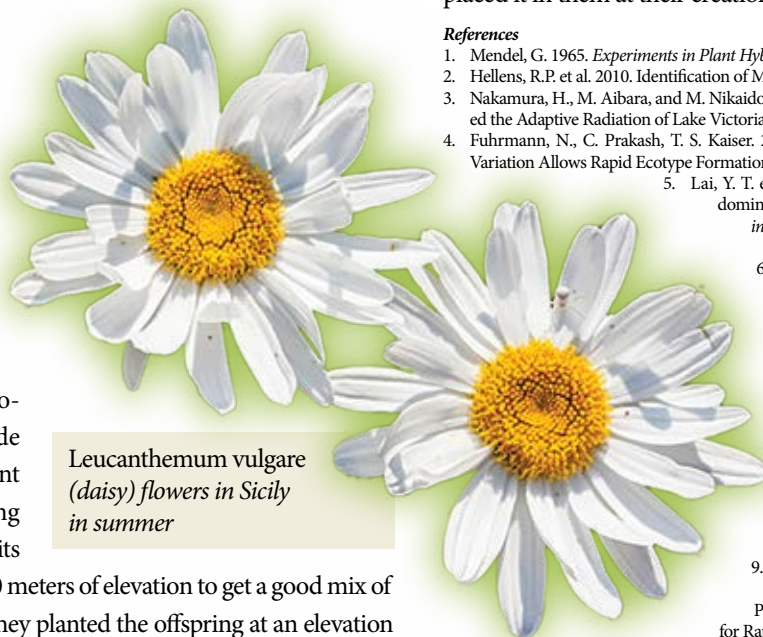
and ATP hydrolysis.<sup>8</sup> Interestingly, they also detected diversity in biomolecules related to epigenetic modifications of chromatin (DNA complexed with proteins and RNA) associated with adaptation.

These results show that these birds are able to cope with environmental changes quickly by exploiting SGV across a wide range of genes and genomic regions for a broad diversity of specified physiological and morphological traits. Not only that, but these data also show that creatures with high levels of genetic diversity can persist in changing environments—providing an ongoing genomic resource to pioneer and colonize other novel environments. The significant role of SGV in adaptation in this parrotbill study has important implications for our understanding of adaptation in songbirds and creatures in general.

### Sicilian Daisies

The Sicilian daisy is a highly adaptable wild plant that lives at multiple elevations in mountainous areas in Sicily, Italy. In a recent study, researchers wanted to assess the change in overall plant adaptation for this particular organism by relocating it to elevations outside its natural habitat on Mount Etna.<sup>9</sup> They began by making crosses of plants growing in its natural habitat of 500 to 1,500 meters of elevation to get a good mix of the population's SGV. Then they planted the offspring at an elevation of 2,000 meters.

They showed that significant amounts of hidden genetic variation in the founding population was utilized in adapting to the much higher elevation. Interestingly, a wide number of genes tripled in




*Leucanthemum vulgare (daisy) flowers in Sicily in summer*

their levels of gene expression at the higher elevation compared to the beginning lower elevation. Many of these genes pertain to biosynthesis of important organic compounds related to plant adaptation along with genes connected to photosystems.

Significantly, the researchers gave the credit for this adaptation to preexisting (built-in) genetic variability as opposed to the evolutionary myth of random mutations. They said, “These results suggest that genetic variation important for rapid adaptation already segregates in the population, which makes evolutionary rescue [survival under environmental stresses] more likely than if adaptation were to rely on new mutation.” They go on to say that “these results suggest that standing genetic variation in plasticity [trait adaptability] could help populations to persist and adapt to novel environments, despite remaining hidden in native environments.”<sup>9</sup>

### Summary

SGV is one of many divinely engineered features in living systems that allow diverse creatures to adapt themselves to a wide variety of environmental challenges and also enable them to pioneer new niches. Remarkably, much of this genetic variation is repeatable in its genomic configuration (according to the environment) and can remain hidden while organisms reside in a highly favorable environment. This hidden SGV can then be strategically deployed when stresses or new challenges are encountered. While the mechanisms utilized to both maintain and deploy SGV remain to be better elucidated, one thing we can say for sure is that the Creator, the Lord Jesus Christ, engineered and provided this variability for living systems and placed it in them at their creation about 6,000 years ago. 

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Dr. Tomkins is a research scientist at the Institute for Creation Research and earned his Ph.D. in genetics from Clemson University.

# Casting Out Doubts The Fruits of ICR Research



*ICR President Dr. Randy Guliuzza instructs pastors about how biblical Christian doctrine can never align with evolution*

sires a relationship with His creation. But there are many believers who are considering the doctrine of creation for the first time and are encountering this doubt-inducing strategy. Atheistic voices suggest Genesis and even science should be reinterpreted to align with false modern “scientific” thought. But the real issue is not scientific—it’s spiritual: are we conforming to God’s Word, or are we conforming Scripture

**D**o you remember the first time that you read about Uzzah and the Ark of the Covenant (2 Samuel 6)? I read it as a young person and remember feeling troubled. The oxen pulling the Ark stumbled, and Uzzah did what seemed instinctively right. He reached out to steady it. Yet Scripture tells us that God struck him down. I remember closing my Bible wondering how such an action reflected the goodness of God.

What is most disturbing, though, is not the event itself but what it revealed in my own heart. I was measuring the holiness of our Lord Jesus against my understanding rather than allowing His Word to shape my view of Him. Proverbs 3:5 says to “trust in the LORD with

all your heart, and lean not on your own understanding.” Over time, I began to see how the passage teaches that God is not defined by human expectations. He is holy, and His authority is absolute. Trust requires us to surrender the assumption that we know better than Him.



*Children's Education Specialist Emily Steele teaches students about how science confirms Scripture*

In hindsight, I now recognize I had started to fall for a familiar strategy to the one Satan introduced in Genesis 3 when the serpent asked, “Has God indeed said . . . ?” Doubt begins when trust in Jesus’ Word is weakened. Suspicion toward Scripture soon becomes suspicion toward the Lord Jesus Himself.


Psalm 33:9 makes the biblical record of creation clear, “For He spoke, and it was done; He commanded, and it stood fast.” Creation is real history spoken into existence by the personal Creator who de-

to fit our worldview?

Believers’ confidence in Scripture needs to be strengthened against the enemy’s strategy, and seeing how research confirms Genesis does just that. Through the vital work of the Institute for Creation Research, rigorous science continues to demonstrate that God’s Word proves trustworthy from the beginning.

ICR’s research identifies unique creature features that complement the longevity recorded among the biblical patriarchs. Our work in geology reveals worldwide evidence consistent with a global flood, showing common rock patterns that align with the Bible’s account of Noah. ICR’s genetic research disputes evolutionist claims that humans and apes are related. And ICR is doing so much more. Perhaps the most exciting research yet is our trailblazing and comprehensive work to develop and introduce a new theory of biological design (TOBD) that recognizes the unmistakable evidence supporting intentional engineering in creation rather than unguided processes.

When your church, school, or family encounters these discoveries, something changes. Students who once assumed faith required compromise begin to see that science is not overturning Scripture; science is only catching up to it. Confidence grows. Trust deepens. Our relationship with the Lord Jesus, our Creator, strengthens.

ICR’s faithful partners have supported this good mission for decades. Increasingly, others are giving for the first time after realizing how urgently believers need scientific answers that reinforce confidence in God’s Word. Through your generosity, these critical resources reach those who are still wrestling with doubt, as some of us once did. It equips them to stand firm in the Word of God. 

*Mr. Gadberry is the director of development and donor relations at the Institute for Creation Research.*



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# SEEING EYE-TO-EYE

Like all biological structures, explaining the vertebrate eye—or any eye for that matter—is a challenge to neo-Darwinism (modern synthesis). When conventional scientists attempt to describe eye evolution, they begin with a simple or “primitive” visual system and extrapolate, vaguely gesturing to mystical evolution by natural selection, to explain the highly sophisticated vertebrate eye.

Major parts of the evolutionary progression seen in animals, from nondirectional photoreception to high-resolution vision, is mirrored within the single cells of phytoplankton. In both animals and phytoplankton, selection on the photoreceptive systems acts primarily on the fitness of the behavior, and this in turn causes selection on the performance of the sensory systems.<sup>1</sup>



But selection and fitness do not explain the origin of such irreducible visual systems.<sup>2,3</sup> These complex photosensor systems could only have been specifically designed for organisms according to their needs. Even “simple” eyespots (pigment spot ocelli) are shockingly advanced in single-celled creatures.<sup>4</sup>

Eyespots of astonishingly advanced organization appear even in some unicellular forms. That of the dinoflagellate, *Nematodinium*, bears a lens, a light-gathering chamber, and a photoreceptive pigment cup—all developed within a single-celled organism.<sup>5</sup>

Despite the difficulties evolutionists face to explain the origin of eyes, four scientists recently decided to try again, publishing an article about the alleged evolution of the vertebrate retina. They began by stating that the “retina is a uniquely complex and evolutionarily conserved structure.”<sup>6</sup> There’s no question as to the retina’s intricacy, and

calling it “conserved” means that it has remained relatively unchanged over supposedly millions of years. In other words, *the retina is unevolved*.

However, the authors proposed that “a composite ancestral median eye” from an unknown one-eyed sea creature was repurposed, eventually becoming the vertebrate retina over time.<sup>6</sup> Furthermore, the remnants of this cryptic median eye somehow became the pineal endocrine gland (epiphysis cerebri) in our brains.

So, the paired eyes of people (and other vertebrates) serendipitously originate from a 600-million-year-old microscopic, single-celled, cyclopean ancestor with a visual organelle that also remains operative in today’s phytoplanktonic descendants.

Additionally, according to the researchers’ explanation, this ancestor once again began to lead an active aquatic life, resulting in a need for paired eyes. Therefore, a second eye began to evolve, replicating the original small median eye. This is all purely theoretical, if not speculative.

Dan-Eric Nilsson, professor emeritus in sensory biology at Lund University in Sweden, shared one of his takeaways:

Now we finally understand why the paired eyes of vertebrates differ so radically from the eyes of all other animal groups, such as insects and squid. The film of our eyes—the retina—developed from the brain, whereas the eyes of insects and squid originate in the skin on the sides of the head.<sup>7</sup>

Vertebrates have always been obviously different from insects and squid. It is not surprising therefore, that their eyes form differently. But this most recent story does not provide sufficient scientific evidence to indicate they evolved. What we observe better fits the record of eye origins in Genesis: the invertebrate and vertebrate eyes were purposefully created and uniquely formed. They have always had distinct functionality.

To conclude, the evolution of visual systems is merely subjective and speculative. Nilsson and his colleague Colley are among many who resort to reconstructing “a plausible set of evolutionary events and causes leading to the unique condition in vertebrates.”<sup>1</sup> No one has observed these events and causes. It must be taken by faith.

Conversely, faith in the Creator is not

only justified and supported by what is seen in creation,<sup>8</sup> but it can also bring salvation and eternal life: “For by grace you have been saved through faith, and that not of yourselves; it is the gift of God.”<sup>9</sup>

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Dr. Sherwin is a science news writer at the Institute for Creation Research. He earned an M.A. in invertebrate zoology from the University of Northern Colorado and received an honorary doctorate of science from Pensacola Christian College.



*“Do not lay up for yourselves treasures on earth, where moth and rust destroy and where thieves break in and steal.”*

— M A T T H E W 6 : 1 9 —

*Stereomicrograph of a pink-striped oakworm moth (*Anisota virginiensis*) in ventral anterior view. Features of this silk moth include chitinous hairlike scales (orange hairs), antennae, compound eyes, and legs tipped with claws.*

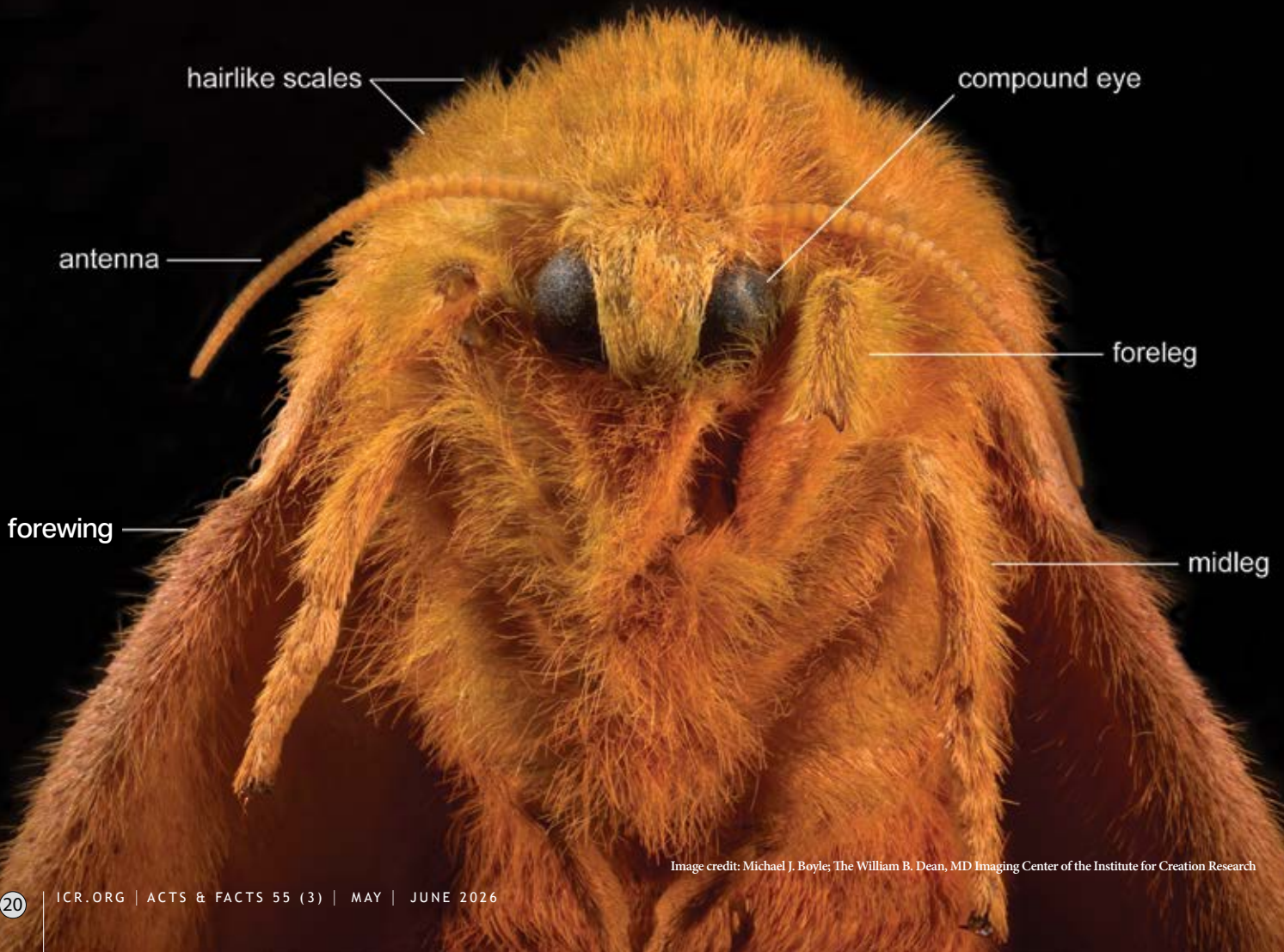


Image credit: Michael J. Boyle; The William B. Dean, MD Imaging Center of the Institute for Creation Research

# Essential Training: A New Series

B R I A N T H O M A S , P H . D .

I teamed up with friends from ICR and Eric Hovind of Creation Today for some campus outreach at two Dallas-area universities just a couple months ago. Our team engaged with dozens of students over a wide range of topics. Most brought arguments against Christianity, but a handful of Christians came forward to chat as well. Several expressed the same concern. They were studying Scripture, following Jesus, and witnessing to their friends, but whenever they heard objections to Christianity based on science, they had virtually no answers. Could we help?

Yes! The Lord has ICR on the planet to meet this exact need.

One student, Jackson, had come to know the Lord just two years ago. He and I chatted on a pleasant, breezy day at a picnic table. He pinpointed his problem for me. He had read in John 5:46–47 how Jesus told the Pharisees that they should believe all of Moses' writings. Well, that includes Genesis and its record of the creation and the Flood. But haven't fossil experts proven that humans evolved from apes—not Adam? And haven't archaeologists found no worldwide layers, making the Flood a myth? That's when faith-changing information can come to the rescue.

Actually, those supposed fossil apemen consist of remains from apes or men or both that are forced to fit together by boundless imagination.<sup>1</sup> And we have to look at the vast stack of rock layers found *beneath* archaeologists' layers to see the worldwide patterns that affirm the Flood.<sup>2</sup> How I wish we had more time to help Jackson tackle these tough questions, but he soon had to run to class.

Before these campus events, we'd already decided to launch a new column in



Image credit: Tanya Hovind

*Acts & Facts* to equip young readers with the answers they need most. Students should enter the wild world of university life with their faith on a firm foundation instead of feeling so ill-equipped. My time with them confirmed we're heading in the right direction!

Look for "Essential Training for Christian Students Standing for Truth" at the very top of an article in each regular issue of *Acts & Facts*. This column will feature creation science, philosophy, history, archaeology, and the Bible itself in its own defense.

We hope that a new generation will be encouraged by the Genesis-friendly facts and logic that we plan to feature in this column. And why not also hope that older generations—the majority of our supporters—read and pass this down as well? Together we can equip our younger, beleaguered brothers and sisters in Christ to build their house on the rock so their faith stands when storms of

questions and doubt inevitably come their way in school and beyond.

We serve a risen Lord Jesus who is "the truth" and became one of us.<sup>3</sup> We long for His followers to be "ready to give a defense to everyone who asks you a reason for the hope that is in you."<sup>4</sup> We really can tackle the toughest, and for some the most important, questions. We have every reason, then, to embrace and explain what makes Him worth studying with all our minds, serving with all our strength, believing with all our wills, and loving with all our hearts. Let's get trained and stand for truth! 🙏

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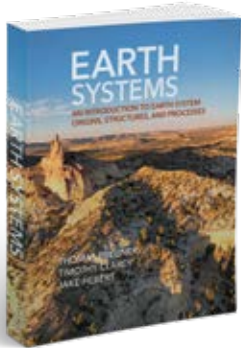
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*Dr. Thomas is a research scientist at the Institute for Creation Research and earned his Ph.D. in paleochemistry from the University of Liverpool.*



I grew up believing that the old-Earth view was the scientific explanation for how our world was created. At the same time, I was also aware of the young-Earth view and the Bible’s account of creation. I always assumed that somehow the two fit together, even if I didn’t fully understand how. . . .

Now, honestly, I’m pretty surprised. **As we’ve been working through the evidence in our text, I’m finding myself reconsidering what I always assumed. Based on what we’re learning, the young-Earth view is actually carrying more weight for me than I ever expected.** It’s been eye-opening and has definitely challenged some long-held beliefs in a way I didn’t anticipate.



Growing up in school I was taught this idea that the world was formed over billions of years. I also grew up in a family that taught God formed everything we see today in six days. . . . I have questioned how everything we see was created in six days, as I did not understand completely

how tectonic plates work and the full power of erosion.

**Young earth makes so much more sense to me after reviewing the content taught to me over the last week.** I had no idea that tectonic plates were moving in such a catastrophic manner during the great Flood. . . . I have not thought of the Flood during Noah’s time in such depth. . . . **I look at the world through a different lens now as well as have a more scientific understanding than just saying “well it’s in the Bible so it happened.”**

—R. T.

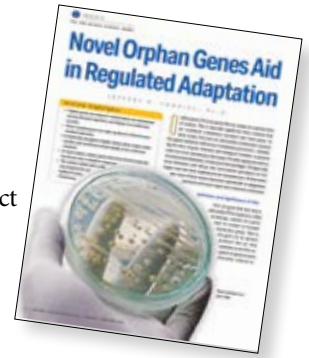
**Editor’s note:** *Earth Systems: An Introduction to Earth System Origins, Structures, and Processes* is available as a print and digital book. To get your copy, visit [ICR.org/store](http://ICR.org/store).



Please pass my appreciation to geneticist Dr. Jeffrey Tomkins for his article “Novel Orphan Genes Aid in Regulated Adaptation” in the Jan/Feb 2026 issue of *Acts and Facts*. . . . Tomkins writes clearly and simply enough that I can understand his message. This

is an important concept in our age of skepticism. Also . . . I can observe that he is attempting to discuss the topic from an impartial perspective. He seems to consider every possible point of the subject objectively. I respect Tomkins’ scholarly work in genetics.

—S. L.



We have been supporters of ICR since 1993 when a trip through your Museum of Earth History in Santee prompted me to read the Bible and to ultimately accept Jesus Christ as my Lord and Savior. We recently discovered the Digging for Truth program (Associates for Biblical Research) and saw your Dr. Brian Thomas interviewed on one of the episodes. **We were glad to see ICR joining forces with them in confirming God’s Word.** Keep up the good work.

—S. and T.

**Editor’s note:** ICR delights to work with like-minded ministries. To hear more interviews with ICR scientists, tune in to ICR’s program *The Creation Podcast* on YouTube or wherever you listen to podcasts.



I was fascinated when Dr. Guliuzza talked about the engineering approach to biology. Three words in the [Mar/Apr 2026] *Acts & Facts* [article “Making a TOBD Easy: A Conversation That Says It All”] were a big step in understanding it: “demonstrate cognitive abilities.” These words speak about the actions of organisms but also refer to the personality of God. Thanks.

—D. A.

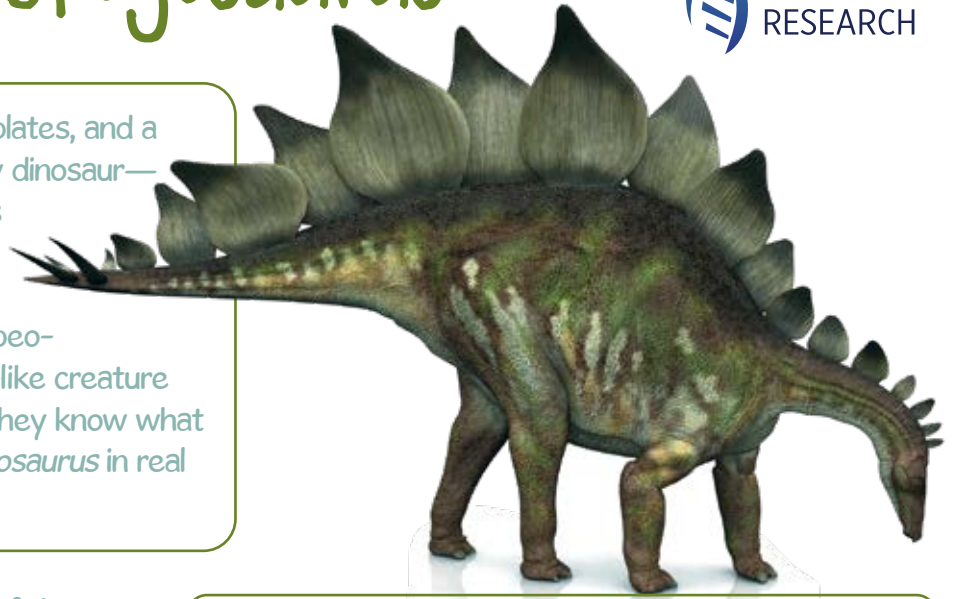
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Written by Michael Stamp, illustrated by Melissa Marquez

# Stegosaurus

What has a long, spiky tail, armor-like plates, and a body the size of a bus? It's not just any dinosaur—it's *Stegosaurus*! While many scientists believe this remarkable reptile went extinct before humans ever existed, the evidence says otherwise. Ancient people in Cambodia carved a *Stegosaurus*-like creature on a temple around AD 1186. How did they know what one looked like? Maybe they saw *Stegosaurus* in real life! Did you also know . . .



- ✓ Jesus made land animals on Day 6 of the creation week about 6,000 years ago.
- ✓ Dinosaurs survived the global Flood on Noah's Ark. Their descendants roamed Earth, likely for many centuries.
- ✓ *Stegosaurus* was a giant reptile, but it had a small, egg-sized brain.
- ✓ Many dinosaurs like *Stegosaurus* were herbivores, or plant-eaters.

### How Many?

1.

2.

3.

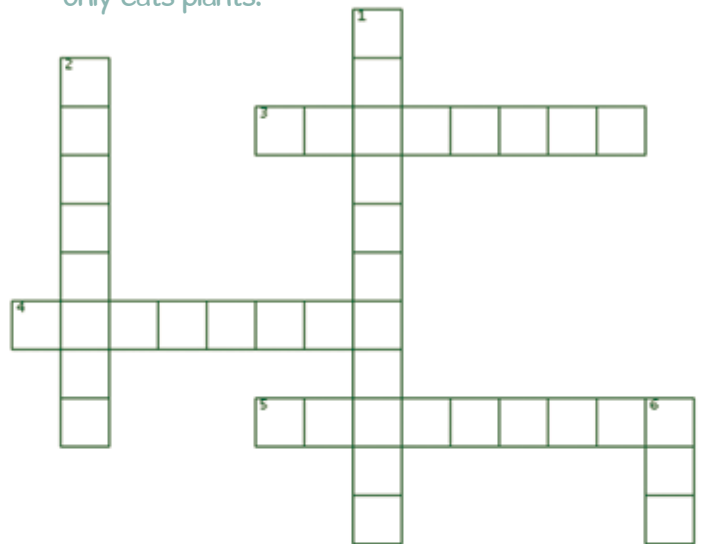
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### Dinosaur Crossword

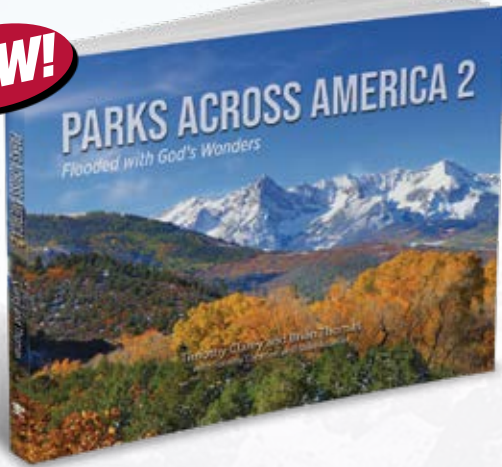
#### DOWN

1. A \_\_\_\_\_ has plates and a sharp tail.
  2. *Stegosaurus* is an example of a \_\_\_\_\_.
  6. The brain of *Stegosaurus* was \_\_\_\_\_-sized.
- #### ACROSS
3. God made the universe in the six-day \_\_\_\_\_ week.
  4. A *Stegosaurus*-like carving was discovered in \_\_\_\_\_.
  5. An \_\_\_\_\_ is a type of animal that only eats plants.



Answers to Dinosaur Crossword: Down: 1. *Stegosaurus*, 2. dinosaur, 6. egg; Across: 3. creation, 4. Cambodia, 5. herbivore

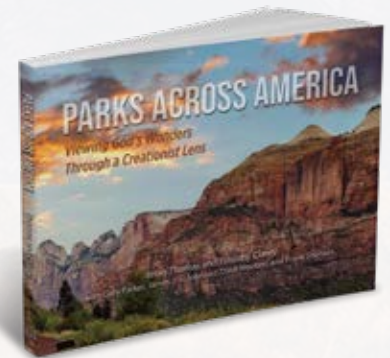
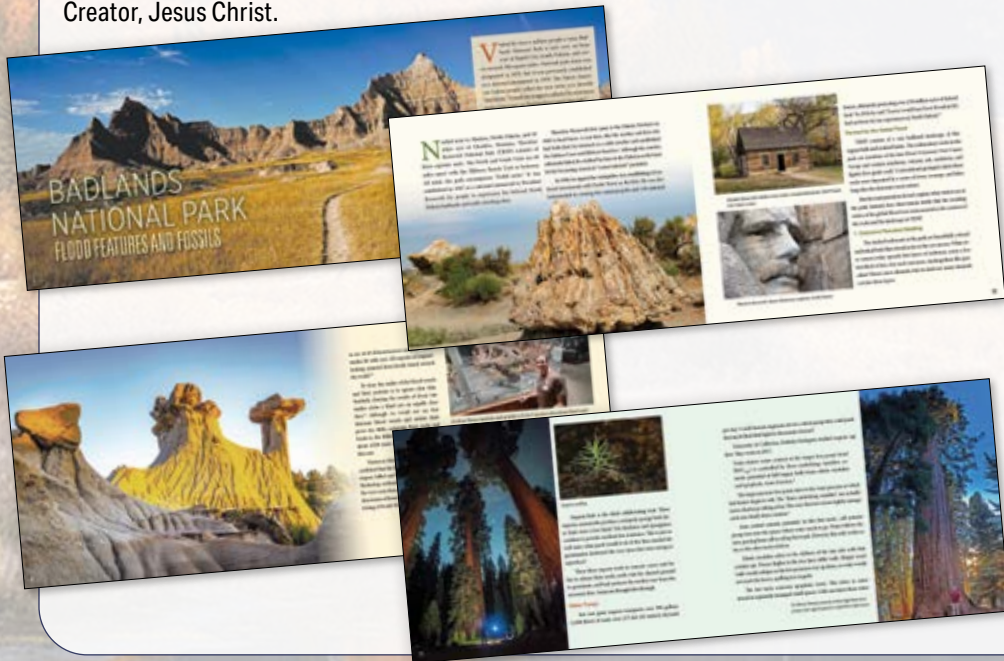
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