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ROCKY MOUNTAIN CREATION FELLOWSHIP

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The President's Corner

The Book of True Hypotheses – Part 2

The Biblical text tells us plainly that God spoke into being the heaven, the earth, and everything therein; and He did this through a manifold of supernatural processes—from nothing to fullness and perfection—over a six-day period. Nearly all Biblical scholars agree that this is also the intended meaning of Genesis 1. Indeed, anyone who reads it will gain the same perspective. And this exemplifies a truth of Scripture that can become a "true hypothesis" in a scientific investigation.

Similarly, using Biblical genealogies, the age of the earth may be estimated. Going through this exercise with a good translation of the Bible will reveal the elapsed time from the beginning of creation to present at about 6000 years. This is another truth of Scripture that could become a true hypothesis.

However, our culture believes allegedly-scientific investigations have proven that a) the universe evolved, from nothing to its current state, by purely naturalistic means—without God—and b) the earth is 4,500,000,000 years old--three quarters of a million times older than what the Bible says. Therefore, these two cultural narratives directly contradict the Bible; and to those who believe the culture, the book of Genesis is a fairy tale, prompting them to think the rest of the Bible cannot be trusted. Consequently, this culture refuses to hear the Gospel, because to them it is foolishness (I Cor 1:18,23).

Yet, the Gospel is not foolishness: Christ is the wisdom and motive-force of creation (I Cor

1:24, Heb 1:2,3). But the cultural narrative is a strongman (Isa 49:24, Luk 11:21,22) holding the world captive to high-sounding nonsense. And I would surmise from passages like Acts 1:8 that the Holy Spirit is the power Who binds the strongman when we testify of Jesus.

However, we often fail to realize that Genesis 1 is as much the testimony of Jesus as John 3:11-18 or Revelation. Because Jesus is the Word of God (John 1:1-3), Psalm 33:9 is saying that He spoke everything into existence. It is then manifest that the preincarnate Christ Jesus is the One Who was speaking the many times where Genesis 1 testifies that "God said", and it was. Therefore, because "the testimony of Jesus is the spirit of prophecy" (Rev 19:10), the creation account is both prophecy (Mat 11:13, II Pet 1:21) and the testimony of Jesus.

We must then disarm the strongman by testifying of Jesus, making Scriptural arguments just as Jesus, Himself, did against the devil in the desert (Matthew 4) and against the Scribes and Pharisees throughout the Gospels, just as Stephen did before the Sanhedrin (Acts 7), and just as Paul did at the meeting of the Areopagus (Acts 17). Let us then untwist the strongman's cultural nonscience by making scientific arguments that our culture can understand, but based on Biblical hypotheses.

The strongman has proposed two "null hypotheses" that are effectively all-encompassing opposites of the two Biblical hypotheses introduced above. Then he has used scientific discourse, cherry picking favorable reasoning's, in order to "prove" his hypotheses.

However, this process is the opposite of true science because the power of science is that of falsification, NOT verification. Proper scientific investigations falsify definitively, destroying false hypotheses. In contrast, scientific verification is never definitive: a verified prediction of a hypothesis—a prediction that comports with observation—will support the hypothesis, but can never prove it beyond all doubt.

Therefore the strongman is destroyed, because both of his null hypotheses can be definitively falsified, which I will do in a subsequent President's Corner. But the two Biblical hypotheses are not only unaffected, they are the only alternatives left after falsifying the strongman's null hypotheses!

¹I borrowed the term "null hypothesis" from statistics, refitting it to do essentially the same, only without the population component.

Rob Bracken
PRESIDENT

Rob Bracken

Let There Be Light!

Don DeYoung, Ph.D

INTRODUCTION

This article reviews our current understanding of light and some of its properties. Light provides a wide window for observing creation details, a view greatly expanded with the microscope and telescope. By one definition, physical light is limited to the visible rainbow colors. Here, we will broaden the term to include the entire electromagnetic spectrum extending from radio waves to gamma radiation. Light offers many creation evidences including our eyesight.

JUST WHAT IS LIGHT?

Curiously, after centuries of study, we still lack full understanding of the nature of light. Many experiments show a wave nature of light with the waves adding together and canceling, somewhat similar to water waves. This wave property is shown by light interference, diffraction and polarization. Other experiments reveal a particle nature for light, for example the photoelectric effect and Compton scattering. The compact light particles are called photons and display kinetic energy, momentum and collisions similar to tiny marbles. A light photon might best be described as a wave packet, a small bundle or quantum of energy. Clearly, light is a complex entity, spoken into existence at the start of the Creation Week.

Continued on page 4

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COVER STORY: Let There Be Light!

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A continuous light wave is shown in Figure 1. The rapidly vibrating waves are electric (*E*)

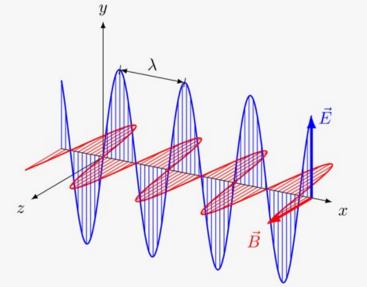


Figure 1. A light wave traveling in the positive x direction. B and E are rapidly vibrating magnetic and electric fields, typically resulting from electron transitions within atoms. The symbol λ shows the light wavelength.

and magnetic fields (*B*). The vast range of this electromagnetic radiation is shown in Table 1 along with typical wavelengths, frequencies and applications. The entire light spectrum extends far beyond our vision. Clearly, there is much more to light than meets the eye.

FARADAY (1791-1867) AND MAXWELL (1831-1879)

These two physical scientists were men of Christian faith and their lives are a sharp contrast. Michael Faraday came from a poor English family, homeschooled and self-taught with little math expertise. Still, Faraday became a world-class inventor of the motor, generator, battery, chemical compounds and much more. Meanwhile, James Clerk Maxwell had wealthy Scottish roots and was a leading mathematician of his day. The technical strengths of Faraday and Maxell were providentially brought together to explain creation details including the nature of light. This research occurred 1 ½ centuries after the pioneer light studies of Isaac Newton (1643-1727). Faraday experimented and visualized electric and magnetic

fields and their lines of force, while theorist Maxwell wrote the accompanying formulas which culminated in the classic set of Maxwell Equations. The positive friendship of the two men is shown in an 1857 letter from Faraday (age 66) to Maxwell (age 26), asking Maxwell for help understanding his equations, "translating them out of their hieroglyphics that we might work with them by experiment" (Cambridge Digital Library). Many readers would agree with Faraday's sentiments.

LIGHT SPEED

In the vacuum of space, light travels at a speed of 299,792,458 m/sec with an uncertainty within one meter/sec. The value is commonly given the letter c, perhaps standing for constant, or alternatively taken from the Latin word for speed, *celeritas*. Rounded *c* values include 3 x108 meters/sec, 186,000 miles/sec and 6 trillion miles/year. This speed would carry a light pulse seven times around the world in one second, or from the earth to the moon in 1.3 seconds, and light speed brings sunlight to the earth in 8 minutes, 20 seconds. It might be suggested that the awkward decimal value for c does not show intelligent design. However, the c value results from the definitions for the meter and second. If the meter had been chosen 0.07 percent longer, the value of c could be exactly $3x10^8$ m/sec. Regardless of the units chosen, the constants of nature were assigned at creation and are exact and well-chosen for our survival and well-being.

Light slows down in materials by interacting with component atoms, for example just 0.41c when passing through diamond. The vacuum speed c, however, is a universal limit. No objects with mass can reach or surpass this speed. Relativistic physics shows that to do so requires an infinite amount of energy. As evidence, in particle accelerators, charged particles are moved at speeds as high as 0.99999c. In these experiments the particle speed always remains shy of c and the effect-

THE ELECTROMAGNETIC SPECTRUM

TYPE		RADIO	MICROWAVES	INFRARED	VISIBLE	ULTRAVIOLET	X-RAYS	GAMMA-RAYS
		INFRARED	Red Orange	Yellow Green	Blue Indigo	Violet* ULTRA	VIOLET	
				* ROY G BIV				
FREQUENCY		< 10 ⁹	10 ⁹ - 10 ¹²	10 ¹³ - 4x10 ¹⁴	4x10 ¹⁴ - 7.5x10 ¹⁴	10 ¹⁵ - 10 ¹⁷	10 ¹⁷ - 10 ²⁰	> 10 ²⁰
WAVELENGTH	Range	>30 cm	3003 cm	25μm - 750nm	750 - 400 nm	400 - 1 cm	1 nm - 1 pm	< 1 pm
	Comparative Size	Building	Finger length	Dust particle	Bacteria	Virus	Atom	Atomic nucleus
USES		AM/FM Radio, TV, Garage Door Opener	Microwave Oven, Police Radar, Wi- Fi, Cell Phone, Bluetooth, Satellite Communication	TV Remote, Heating	Range of Vision	Sterilization, Fluorescence, UV Spectroscopy	Medical, Airport Security	Medical, Tracer, Gamma-Ray Astronomy

Table 1. Electromagnetic spectrum with approximate frequency and wavelength ranges, along with typical applications. Moving down the list, light wavelength decreases while frequency and energy increases (μ = micro or 10⁻⁶; n = nano or 10⁻⁹; p = pico or 10⁻¹²).

tive mass or inertia of the particle is observed to increase without limit as *c* is approached.

Massless neutrinos, gluons and gravity waves all appear to share light speed *c* in traveling through space. In contrast, in the spiritual realm, prayer communication has no such physical speed limit.

To explain the observation of distant starlight in a young universe, various creation models are proposed. They variously include a decaying light speed over time, or distinct incoming and outgoing light speeds, or vastly different timescales occurring on earth and in space. A simpler, alternative suggestion is that starlight was instantly spread across space at the moment of its creation, then set at the current constant value *c*. This mature, fully-functioning creation viewpoint has unresolved issues; however, there are questions with all models.

One well-known example of light is the cosmic microwave background radiation, or CMB. This radiation permeates space with a peak frequency of 160.4 GHz, wavelength of 1.9 mm, and temperature equivalent of 2.725°K (-273.15°C). CMB typically is described as relic radiation from the alleged big bang origin of the universe. This "after-glow" radiation presents multiple mysteries to cosmology including its large-scale uniformity or smoothness, and also temperature variations, or anoma-

lies. Neither does the CMB support an inflationary beginning for the big bang. The true source of the CMB is simply not known, one of many deep space mysteries.

VISIBLE PART OF THE LIGHT SPECTRUM

The known electromagnetic spectrum extends from radio waves through gamma rays with frequencies from about 10^3 - 10^{20} Hz respectively, covering 17 orders of magnitude. Meanwhile, visible light extends from the colors red through violet with a frequency range of about $4x10^{14} - 7.5x10^{14}$ Hz and wavelengths 400 to 700 nanometers. To illustrate the micro size of visible wavelengths, more than a hundred would fit within the thickness of this page.

On a linear scale, the visible percentage of the spectrum follows:

$$\frac{7.5 \times 10^{14} - 4 \times 10^{14}}{10^{20} - 10^3} (100\%) \approx 0.00035\%$$

Considering the entire known electromagnetic spectrum stretched out over a mile length, the visible portion then would be less than a one-inch portion of the entire mile. Our 0.00035% result is arbitrary because the spectrum extends well beyond the known radio wave and gamma ray boundaries, perhaps without limit. The visible section of the light spectrum may actually be only a billionth or less of the total. Yet, the portion which we do see is a brilliant

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A Visit to the Creation Museum and Ark Encounter

Speaking Truth in an Age of Lies

Photos and Text by Miranda Bracken

"One of the reasons young adults feel disconnected from church or from faith is the tension they feel between Christianity and science...Three out of ten young adults with a Christian background feel that 'churches are out of step with the scientific world we live in' (29%). Another one-quarter embrace the perception that 'Christianity is anti-science' (25%). And nearly the same proportion (23%) said they have 'been turned off by the creation-versus-evolution debate."11 Perhaps one of the most chilling realities of the twenty-first century is how many people leave the church over a perceived division between science and Christianity. With more people than ever attending secular colleges in pursuit of a science degree, voices of truth are desperately needed.

Answers in Genesis saw the need and did not remain silent. In May of 2007, The Creation Museum was opened to the public. The museum, along with its sister attraction, The Ark Encounter, accommodates over one million visitors annually² with solid apologetics and strong defenses for the Genesis creation account.

Although both attractions have suffered scathing criticisms for their proclamation of the Bible's truth, neither has faltered. In fact, both the Creation Museum and the Ark are experiencing massive growth.

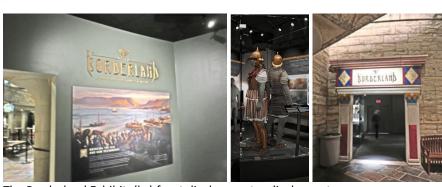




The Creation Museum



The Ark Encounter



The Borderland Exhibit: (I-r) front display, center display, entryway







The Creation Museum (I-r): Discovery Hall, Stargazer Planetarium, 4D Effects Theater



Main Exhibit Entrance



Radiometric dating exhibit



The Relevance of Genesis exhibit



The Garden of Eden exhibit



Cave of Sorrows exhibit



Noah's Ark exhibit



The Flood exhibit



The Fossil Record exhibit



Confusion exhibit



Christ, Cross, Consummation exhibit

The Creation Museum in Petersburg, Kentucky, recently opened a brand new exhibit - Borderland: Israel in the Time of Jesus. Along with the new addition come over 140 already existing exhibits, a 4D special effects theater, botanical gardens, a petting zoo, multiple ziplines, and the spell-binding Planetarium.

After experiencing record-breaking attendance in 2021, The Ark Encounter has also announced future innovations. Included among these are a Tower of Babel exhibit which will be dedicated to tackling the issues of racism in today's culture, as well as an indoor scale model of Jerusalem during the time of Christ and a themed carousel for families with kids.²

A typical visit to either attraction could last a day-and-a-half, complete with attendance of assorted lectures and time for appreciation of various exhibits and video productions. Typical presentations last forty-five minutes to an hour-and-a-half, and video productions range from ten to thirty minutes.

Both attractions are built and maintained with the sole intention of defending biblical truth and providing Christians with the necessary tools to do the same. Behind every state-of-the-art display and detailed information panel is the Word of God, and every person who attends the museum or the Ark must face the question, "Did God create?"

"Prepare to believe," reads the Creation Museum's website and merchandise.³ Prepare indeed. The exhibits and programs defend Biblical truths, all fulfilling the Great Commission by demonstrating how Genesis is the foundation of the Gospel.

"...when [the Bible] speaks on science, it is accurate," wisely stated Adrian Rogers. And so it is, yet our culture does not believe it. What Answers and Genesis has accomplished - is accomplishing - in the Creation Museum and Ark Encounter

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Dr. Tim Clary

TOPICS

Great Answers to Three Key Questions About Origins
Adam, Not Apes
The Truth about the Global Flood
Continuous Environmental Tracking
Do Dinosaurs Support Evolutionary Theory?

LOCATION

Shepherd of the Hills Lutheran Church 7601 S University Blvd Centennial, CO 80122 Tickets: \$25 Adults, \$15 Students

For conference info and to purchase tickets: denversocietyofcreation.org/special%20events.htm



Northeast Colorado Creation Group

Hosting:

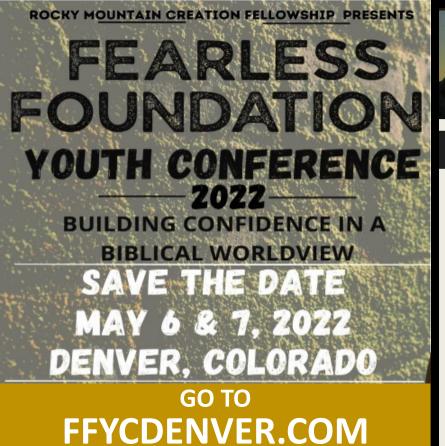
Kate Warren

Teaching Biblical Creation in an Evolution-Focused Museum

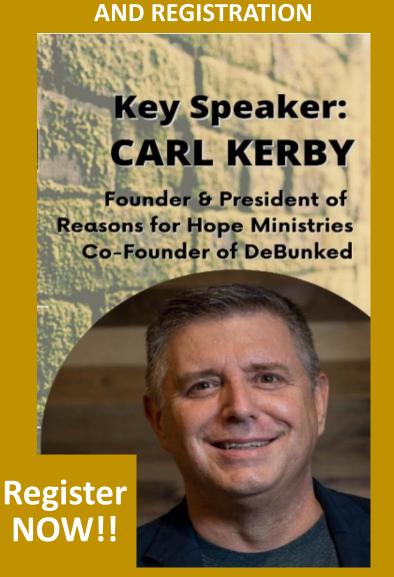
Thursday, March. 10, 2022 @ 6:30-8 PM

Berean Bible Church --211 West Beaver

Fort Morgan



FOR CONFERENCE INFORMATION





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Let us know if you have any questions!

Brian Mariani
bmariani@discovercreation.org
970-523-9943

COVER STORY: Let There Be Light!

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rainbow of colors. Estimates vary widely on the number of visible color shades the eye can distinguish within each color, perhaps as many as ten million shades (Wyszecki, 2006).

A single light photon striking the retina of our eye triggers an electrical response, as shown in a classic study eight decades ago (Hecht, 1942). This is astounding sensitivity since a visible green light photon, used by Hecht, comprises just 10⁻⁴⁰ joules of energy (10⁻²¹ electron volts). 10⁻⁴⁰ joules of energy is roughly the kinetic energy of a grain of dust drifting a distance of one nanometer during a full year. It is known that about ten simultaneous photon strikes are needed before neural filters permit the brain to register the light pulse. The multiple photons needed for eye detection shows careful design. If we saw every single light photon striking our retina, the visual 'noise' would be highly distracting.

A COINCIDENCE?

Of the total light spectrum emitted by the sun, the peak solar output wavelength is 500 nanometers. This green color wavelength is also the center of our vision range which we remember as *Roy G Biv*.² Furthermore, the earth's atmosphere filters out the surrounding solar wavelengths coming in our direction: Infrared and longer wavelengths are absorbed by air molecules while ultraviolet and shorter wavelengths are absorbed by electron transitions. What this means is that the sun and earth atmosphere have been carefully tuned to the optimum sensitivity of our created eyesight.

LIGHT IN SCRIPTURE

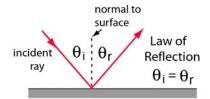
The word light appears more than 200 times in the Old and New Testaments with several Hebrew and Greek roots. In general, the word fits in with several contrasts: light and darkness, day and night, good and evil, godly and ungodly. Light itself is declared good at its creation on the first day of the creation in

Genesis 1:3, and in Revelation 22:5, light signifies God's presence. "God is light" according to 1 John 1:5. Note that this phrase cannot be reversed as "light is God" which would be a pantheistic limitation on God.

This concludes our excursion into the behavior of light. All of creation declares God's glory including the beautiful, useful electromagnetic spectrum which surrounds us.

TWO SIMPLE LIGHT EXPERIMENTS Reflection

Using a shiny spoon as a mirror, look at your face reflection, first on the hollowed side, then the backside of the spoon. The image difference follows from the law of light reflection, incident angle θ_i = reflected angle θ_r .



Diffraction

With either hand, hold your index and middle finger together with a partial gap about one millimeter wide. Now with one eye, look closely through the opening at a light source. You should see a number of vertical dark lines between your fingers, perhaps blurry. These are dark fringes caused by cancellation of the light waves passing (diffracting) between your fingers.

Hecht, S., S. Shlaer and M.H. Pirenne, Energy, Quanta and Vision, J. GenPhysiol, 1942, 25(6):819-40. Wyszecki, Gunter, Color, World book Inc., Chicago, 2006. University of Cambridge Digital Library. https://cudl.lib.cam.ac.uk/ view/PH-CAVENDISH-P-00001/1.



Don DeYoung is part-time faculty at Grace College Winona Lake, Indiana following a career in science and math. He is a graduate of Michigan Tech, Grace Seminary (MDiv), and Iowa State University (PhD, physics). Don has written 21 books on Bible-science topics including object lessons for kids. He and his wife Sally have three married daughters and ten grandchildren. Family activities include kayak-fishing and Grand Canyon backpacking.

¹ Light speed is slowed a bit by the earth's atmosphere but not measurably affected by air pressure or gravity. All evidence points to a constant speed *c* for light everywhere in the vacuum of space. This evidence includes GPS satellite operation, timing of eclipses, solar system space probe signals, the physics of stars and galaxies, and more. Deep space has many mysteries but light speed does not appear to be an unknown.

² ROY G BIV = Red-Oragne-Yellow-Green-Blue-Indigo-Violet. References:

ARK ENCOUNTER continued from page 7







The Botanical Gardens at the Creation Museum



The Creation Museum as seen from the botanical gardens





The rainbow arch at the Ark; An exotic bird seen at the Ark.

attractions is a work of beauty.

It is time for the church to awaken. Young adults leave the body every day, never to return, and God's people do nothing. Let us take up the standard, just as Answers in Genesis has done, and defend biblical truth. Without Genesis, the Gospel cannot be true, and without the Gospel, hope is lost.

Hope is not lost, because Genesis is true. So what are you going to do about it?



"Miranda is a junior in high-school with an eye on the filmmaking industry. She loves fuzzy blankets, medieval weaponry, books, writing, figure skating, archery, speech and debate, pretty rocks, climbing fourteener's, speech writing and reading J.R.R. Tolkien's novels with a cup of very hot, very black coffee. She is currently creating a series of videos responding to current cultural topics, including critical race theory and the LGBTQ movement."

EDUNDATIONS

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Littleton, CO 80120

All meetings are held free of charge and are open to the public. Contributions are tax deductible.

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¹ Six Reasons Young Christians Leave Church (2011). https://www.barna.com/research/six-reasons-young-christians-leave-church/

² Ark Encounter Sees Record Crowds, Announces Future Expansion Plans as It Marks 5th Anniversary (2021). https://answersingenesis.org/about/press/2021/07/07/ark-encounter-future-expansion-5th-anniversary/

³ https://creationmuseum.org/

⁴ Adrian Rogers, Steve Rogers. What Every Christian Ought to Know, p.15 (2012)



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FOUNDATIONS MARCH/APRIL 2022

For in six days the LORD made the heavens and the earth, the sea and all that is in them. Exodus 20:11

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UPCOMING RMCF FRIDAY NIGHT MEETINGS!!

7pm at the Littleton Baptist Church, 1400 W Caley, Littleton, CO

March 11, 2022

April 8, 2022





Rich Cloud
Chair, Pikes Peak Creation Fellowship

How the Holy Spirit Guided the Writing of Genesis

Wow! This will be fascinating! The authorship, historicity and reliable of the Bible has been under attack like never before. The Bible was written by 40 different authors under the inspiration of the Holy Spirit. How did that work with Moses and the Pentateuch? Now is the time to find out! Don't miss this one!



Dr. Rob Carter
Creation Ministries International

The High Tech Cell

Dr. Carter is one of the world's leading researchers into human genetics. When Darwin published *Origin of Species* no one knew what was in a plant or animal cell. It was a milky white mystery! Now we know a LOT about the inner design of a cell. The complexity is mindboggling and destroys the prospect of stochastic evolution. Dr. Carter will tell us about it!



Dave Rives

Author, Speaker, Researcher, TV Host Founder, Dave Rives Ministries

21 Verses Backed by Science (The Bible Knows Best)

This is an inspirational, educational journey through the scientific and historical accuracy of the Bible. Strengthen your Christian faith with unshakeable evidence. Some topics covered: the remarkable migration of the Arctic Tern, the Paths of the Sea, germ theory, stretching of the heavens, complexity of DNA, dinosaurs in the Bible, and more!

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