ACTS & FACTS

INSTITUTE FOR CREATION RESEARCH

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OCTOBER 2013

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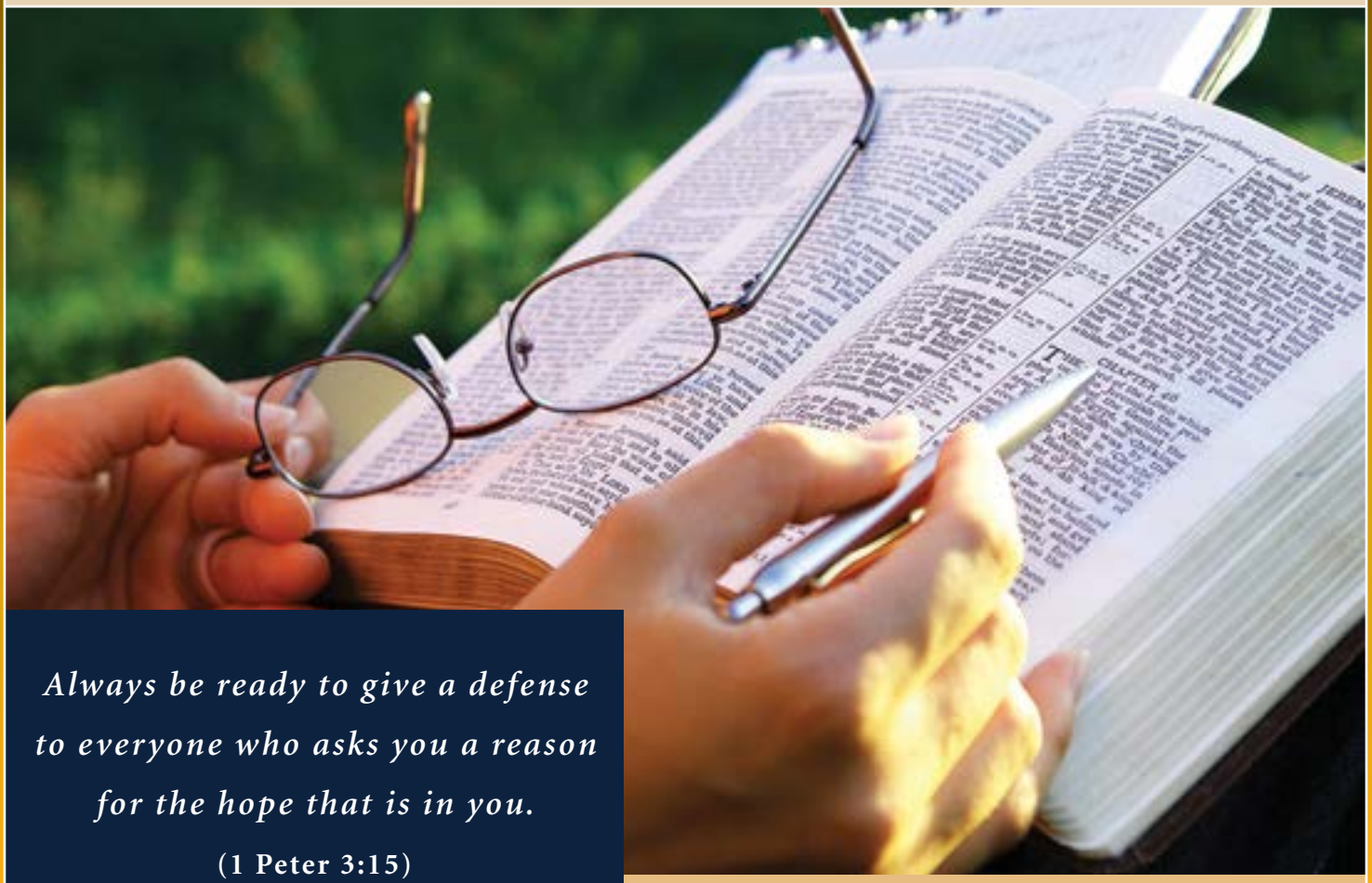
ICR's School of Biblical Apologetics

Equipping Believers for Life & Ministry



Always be ready to give a defense to everyone who asks you a reason for the hope that is in you.

(1 Peter 3:15)

INSTITUTE FOR CREATION RESEARCH

The School of Biblical Apologetics (SOBA) takes Christian leaders who seek specialized training in biblical education and apologetics and teaches them how to examine and promote God's truth through a convenient online study program.

SOBA provides graduate-level training through a Master of Christian Education (M.C.Ed.) program as well as offering a Bachelor of Christian Education (B.C.Ed.) degree plan for applicants who have completed some college. For those seeking a shorter degree plan, an Associate Degree of Christian Education (A.C.Ed.) is also available.

Our focus on training future leaders and maintaining a strict adherence to Scripture makes ICR's SOBA the choice for those who desire to "always be ready to give a defense" (1 Peter 3:15).

Visit **icr.org/SOBA** or call **214.615.8322**.

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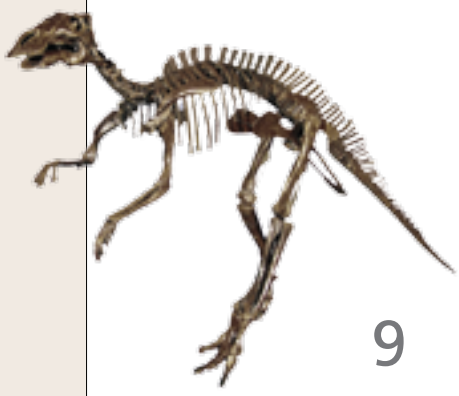
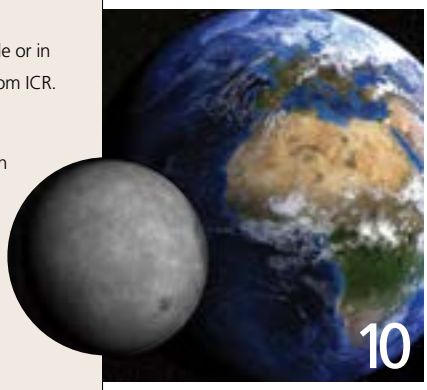




Challenges of White Fields

As Director of Communications at the Institute for Creation Research, I often field requests for our speakers to provide interviews, participate in radio and television programming, sit on panels, teach at workshops, present their findings to live audiences, or participate in other church or school activities. We would like to be able to accept all the invitations that come our way. But unfortunately, we're limited by time, money, and available staff. Realistically, we can't go to all the places that offer invitations to ICR.

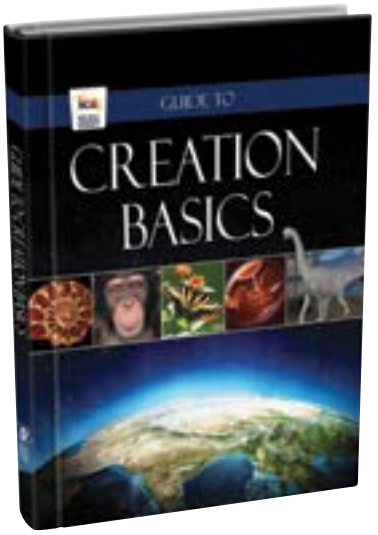
In his article "The Challenge of Plenty" (pages 5-7), Dr. Henry Morris III explains some of ICR's challenges:

> Our cadre of scientists and speakers tries to meet the requests for as many engagements as possible—some 200 or so each year through which we speak or present creation evidence to perhaps 100,000 people. Our publications reach some 500,000 readers each month, and we distribute tens of thousands of our books (mostly free) each year. But all of these numbers represent a very small percentage of the 50 million evangelicals—let alone the other 180 million "Christians"—in the United States! Obviously, it is physically impossible to consistently be in front of that number of people.

While we want to be engaged in the lives of all who request our presence at events, we simply can't. We are, however, looking for ways to meet the needs of those who want our help in equipping believers with God's creation truth.

Along with events requests (see some of this month's scheduled events on page 8), we often receive feedback from you, the reader. So many express appreciation for our free *Acts & Facts* magazine and *Days of Praise* devotional, and we're thrilled that we can provide them to you because of generous donations.

You asked for more illustrations in our books, and so we developed *Guide to Creation Basics*—our high-impact book, loaded with rich images and packed with just the right information you need to understand and explain the basics of creation. Watch for our upcoming book *Guide to Animals*—developed in the same visual style as *Guide to Creation Basics*—to discover God's incredible design revealed in His animal creation. Each page is filled with vibrant illustrations and amazing details about the animal world.



You said you wanted more in-depth information and more science. So, we produced our latest book *Creation Basics & Beyond: An In-Depth Look at Science, Origins, and Evolution* to answer your deeper questions.

Our online short video series, *That's a Fact*, has had over three million views!

You also asked for digital products, and now you can read our latest books on your Kindle, NOOK, and iPad. We also provided our ICR app for your mobile devices.

Our website www.ICR.org offers recent news along with archived articles and information gathered throughout more than 40 years of ministry. In addition, our student ministry outreach, Your Origins Matter (www.YourOriginsMatter.com) hosts conferences and offers social media platforms for students to explore the relevant issues of origins (see page 23). ICR's School of Biblical Apologetics (SOBA) offers training to equip believers for life and ministry (page 2).

Dr. Morris says, "Perhaps we could multiply those efforts through radio (we do) and television (not yet), but true discipleship—training God's twice-born to grow in maturity in their understanding and use of His Word—is much more than a short presentation or a detached show." He's right. We want to touch lives. To impact the world. To share truth that will make a difference for generations to come. We're doing much with what we have. But we want to partner with you to do even more—to face the challenges of sharing the creation message in fields that are "white for harvest" (John 4:35).

Jayme Durant

Jayme Durant
Executive Editor

THE CHALLENGE OF PLENTY

The harvest truly is **plentiful**, but the laborers are **few**.

(Matthew 9:37)

ICR constantly receives invitations to speak to churches and organizations around the country, and we try to send our experts to as many events as possible. We are committed to serving the Lord, teaching "whatsoever" He has revealed to us through His Word and His creation. Two thousand years ago, the Lord Jesus challenged His disciples to go all over the world and declare the glorious gospel to all creatures (Mark 16:15). We are to "make disciples" and "baptize" and "teach" everything that the Lord has commanded (Matthew 28:19-20).

The churches are the agency that our Lord commissioned to carry out this vast responsibility, and over the two millennia since His initial command they have spread over every continent among most cultures and in countless cities, villages, and hamlets around the world.

Prior to the Reformation and the subsequent rise of the Industrial Revolution, the worldwide commission was carried out mainly by the churches. As the "protesting" movements took hold and the

HENRY M. MORRIS III, D.MIN.

wealth of the world began to be distributed widely among more people, something changed—the message and mission became muddled by the unwieldy necessity of "bigness" driven by the organized machinery of state and international churches. In time, money and power were required to perpetuate the machinery, and the ends began to justify the means. The gospel was often packaged in programs to increase and maintain attendance, and the teaching of all things shifted from Christ's clear message to official dogma and denominational creeds.

Yes, there are exceptions, but many of those churches—designed and commissioned by the Lord Jesus and led through the direction of the Holy Spirit in the lives of godly elders and deacons—have grown fewer in number and smaller in size over the past century. Driven by a growing sense of urgency, churches began to band together in their spheres of influence, and this resulted in a wide assortment of parachurch organizations and mission agencies sprouting across Europe and the United States. In many cases, these organizations were started and overseen by small groups of churches in an attempt to multiply their efforts. Today, most of those extra-church agencies are independent.

It sometimes appears that churches and parachurch organizations are "fishing" in the same ponds—and sometimes they appear to troll for each other's fish. As the Lord Jesus would have us understand, the harvest is really, really big, if we would only "lift up [our] eyes and look at the fields, for they are already white for harvest" (John 4:35)!

Current Statistics

The 2010 population of the United States has been recorded at over 308 million people (308,747,508).[1] According to the Hartford Institute, 80 percent of people in America believe in God and belong to a faith group, 75 percent (over 230,000,000) identify themselves as Christian, 65 percent claim an affiliation with a congregation, 49 percent are claimed as "adherents" by all congregations, but only 20 percent attend weekly worship.[2]

The Association of Statisticians of American Religious Bodies (ASARB) has conducted surveys since 1952 and is one of the more thorough organizations that breaks out the various congregations and denominations across America. Their analysis of the 2010 U.S. Census includes a differentiation between "members," as traditionally defined, and the more applicable term "adherents," which includes active participants who are not members.[3] ASARB indicates that there are over 150 million (150,686,156) total adherents and 344,894 total congregations in America. There are 77 million (77,546,696) total Protestants and almost 59 million (58,928,987) Catholics. Of the Protestants, over 50 million (50,013,803) belong to an "evangelical" or "conservative" congregation, the largest group of which is the Southern Baptists, claiming almost 20 million (19,896,975) adherents in 2010. Those more than 77 million Protestants are in some 286,000 churches. The over 50 million evangelicals and conservatives are in over 191,000 churches.[6]

The Hartford Institute breaks down the sizes of those various church groups and congregations (excluding Catholic and Orthodox). These figures are important for us to understand.

Comparative Data from Hartford Institute for Religion Research[4]

Average Attendance	Number of Churches[5]	Weekly Worshipers	Percent of Total Churches
7 - 99	177,000	9 million	59%
100 - 499	105,000	25 million	35%
500 - 999	12,000	9 million	4%
1,000 – 1,999	6,000	8 million	2%
2,000 – 9,999	1,170	4 million	0.4%
10,000 plus	40	0.7 million	0.01%

As this chart reflects, the majority of Protestant churches in this country have under 500 members. In addition, *only 40 Protestant churches* across this land have memberships of 10,000 or more. Look again. Nearly 300,000 churches have less than 1,000 attendees on Sunday morning—over half of those congregations have less than 100—with a total of 43 million attending! The vast majority of practicing Christians are in small churches. The big churches get most of the press and, usually, the better-trained leaders. These demographics make for some real challenges—but also some fantastic opportunities.

ASARB tabulated the data from the 2010 U.S. Religion Census into a very interesting analysis of the main evangelical and conservative denominations.[6] Here is the table that emerges.

Group	Congregations	Adherents	% of Population
Southern Baptist Convention	50,816	19,896,975	6.4%
Non-denominational Churches	35,496	12,241,329	4.0%
Assemblies of God	12,258	2,944,887	1.0%
Missouri Synod Lutheran	6,040	2,270,921	0.7%
Churches of Christ	12,584	1,584,162	0.5%
Christian Churches	5,293	1,453,160	0.5%
Seventh-day Adventist	5,665	1,194,996	0.4%
Church of God (Cleveland, TN)	6,100	1,109,992	0.4%
All Other Evangelical/ Conservative Protestants	56,860	7,317,381	2.4%
TOTALS	191,112	50,013,803	16.2%

Perhaps a quick summary of the "big" pieces might be helpful.

U.S. population	308,747,508	
Say they are Christian	231,560,000	75% of U.S. population
Say they are evangelical/ conservative	50,013,803	16.2% of U.S. population
Protestant churches	286,626	
Evangelical/ conservative churches	191,112	55.41% of all U.S. congregations
Of Protestant Churches / Weekly Worshipers[2,4]		
Attending small churches (<500)	~34,000,000	~ 61% of total worshipers
Attending medium-size churches (>500 to 2,000)	~17,000,000	~ 30.5% of total worshipers
Attending mega-churches (>2,000)	~4,700,000	~ 8.5% of total worshipers
NOTE: Disparate surveys preclude precise attendance analysis		

These data reveal an interesting set of issues. Obviously, a rather small portion of the U.S. population is within the evangelical and conservative community, and the bulk of those folks attend smaller churches. Most churches concentrate (as they are supposed to) on the community in which they are planted. Some of the larger churches are able to afford external ministries through radio or television, and some are strong supporters of educational institutions.

Parachurch organizations generally focus on evangelism (mission agencies, campus ministries, etc.) or discipleship (Precept Ministries International, Bible Study Fellowship, etc.). Others have unique ministries through music (Gaithers, Hoppers, etc.), counseling (Focus on the Family, etc.), or specialized radio ministries (Hope for the Heart, Back to the Bible, etc.). All of these see themselves as resources for the churches or are attempting to perform a service that most churches cannot.

There are a number of problems that are connected with broad-scale Kingdom work. Churches, by the Lord's design, are focused on a limited number of people. Even the mega-churches with weekly attendance in the thousands basically minister to the same group each week. Among those churches with external programs (radio, TV, etc.), the contact is often limited and detached. Parachurch organizations are not churches and, even with the best of intentions, cannot and should not attempt to usurp the role of churches. At best, parachurch ministries should evangelize and/or disciple with the intent to assist and to ultimately steer folks into good, local churches.

The Challenge of Plenty

Rather than trying to solve problems here, perhaps ICR can share its own challenges with you. The Institute for Creation Research is, foremost, a discipleship organization. Our mission is to share the wonderful evidence God has provided through His own creation that confirms the accuracy and authenticity of His Word. The driving purpose behind our research, publications, seminars, and other resources is to help God's people increase their confidence in the Scripture and to supply resources for church families that will strengthen their faith and sharpen their worldview.

ICR is a rather small organization compared to many—certainly, we are smaller than most churches. Our cadre of scientists and speakers tries to meet the requests for as many engagements as possible—some 200 or so each year through which we speak or present creation evidence to perhaps 100,000 people. Our publications reach some 500,000 readers each month, and we distribute tens of thousands of our books (mostly free) each year. But all of these numbers represent a very small percentage of the 50 million evangelicals—let alone the other 180 million "Christians"—in the United States!

Obviously, it is physically impossible to consistently be in front of that number of people. Perhaps we could multiply those efforts through radio (we do) and television (not yet), but true discipleship—training God's twice-born to grow in maturity in their understanding and use of His word—is much more than a short presentation or a detached "show." Often, such efforts become little more than the "very lovely song of one who has a pleasant voice and can play well on an instrument; for they hear your words, but they do not do them" (Ezekiel 33:32).

How can ICR face the challenge to reach the "plenty" already "white unto harvest"? What mechanisms can we devise to reach the smaller churches—where over 40 million evangelicals worship and some languish—let alone to provide a continuing training resource that will stimulate "one another to love and good works" (Hebrews 10:24)?

Plans are in the works! More about this in next month's issue. ●

References

1. Fact sheet from U.S. Census Bureau "Quick Facts": 2010 Population Estimate. Posted on www.census.gov, accessed August 19, 2013.
2. Thumma, S. 2010. *The Present State of the Church: A Workshop on How to Create a Future for Your Congregation.* Hartford Institute for Religion Research. Powerpoint presentation posted on hirr.hartsem.edu.
3. The "adherent" figure is meant to be the most complete count of people affiliated with a congregation and the most comparable count of people across all participating groups.
4. "Fast Facts about American Religion," Hartford Institute for Religion Research. Posted on hirr.hartsem.edu, accessed on Aug. 28, 2013.
5. The vast majority of the congregations listed are Protestant.
6. Grammich, C. et al. 2012. *2010 U.S. Religion Census: Religious Congregations & Membership Study.* Association of Statisticians of American Religious Bodies.

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

ICR OCTOBER EVENTS

OCTOBER 5-6
Maywood, IL
Woodside Bible Chapel
(J. Hebert) 708.345.6563

OCTOBER 6
Dallas, TX
First Baptist Dallas Discipleship University
(H. Morris III) 214.969.0111

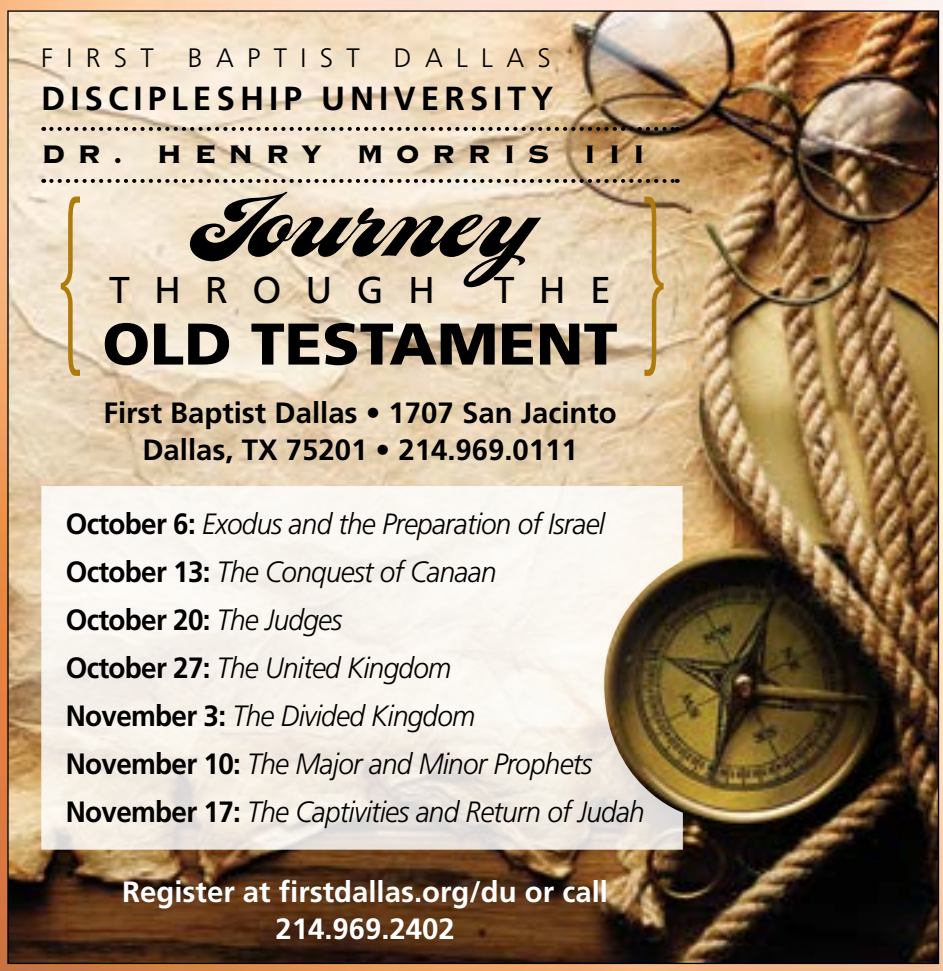
OCTOBER 6
Denton, TX
Denton Bible Church
(J. Morris) 940.297.6700

OCTOBER 6-7
Garden City, MI
Merriman Road Baptist Church
(N. Jeanson) 734.421.0472

OCTOBER 9
Fort Worth, TX
Southwestern Baptist Theological Seminary
(J. Lisle) 817.923.1921

OCTOBER 11-12
Indian Trail, NC
SES National Conference on Christian Apologetics 2013
(R. Guliuzza, J. Lisle)
800.778.7884 x240

OCTOBER 13
Dallas, TX
First Baptist Dallas Discipleship University
(H. Morris III) 214.969.0111



OCTOBER 13
Denton, TX
Denton Bible Church
(R. Guliuzza) 940.297.6700

OCTOBER 14-15
Pensacola, FL
Pensacola Christian College Chapel
(F. Sherwin) 850.478.8496

OCTOBER 19-20
Morgantown, WV
Calvary Chapel Morgantown
(R. Guliuzza) 304.906.7812

OCTOBER 20
Dallas, TX
First Baptist Dallas Discipleship University
(H. Morris III) 214.969.0111

OCTOBER 20
Denton, TX
Denton Bible Church
(N. Jeanson) 940.297.6700

OCTOBER 26
Anaheim, CA
2013 Calvary Chapel Men's Conference
714.979.4422

OCTOBER 27
Dallas, TX
First Baptist Dallas Discipleship University
(H. Morris III) 214.969.0111

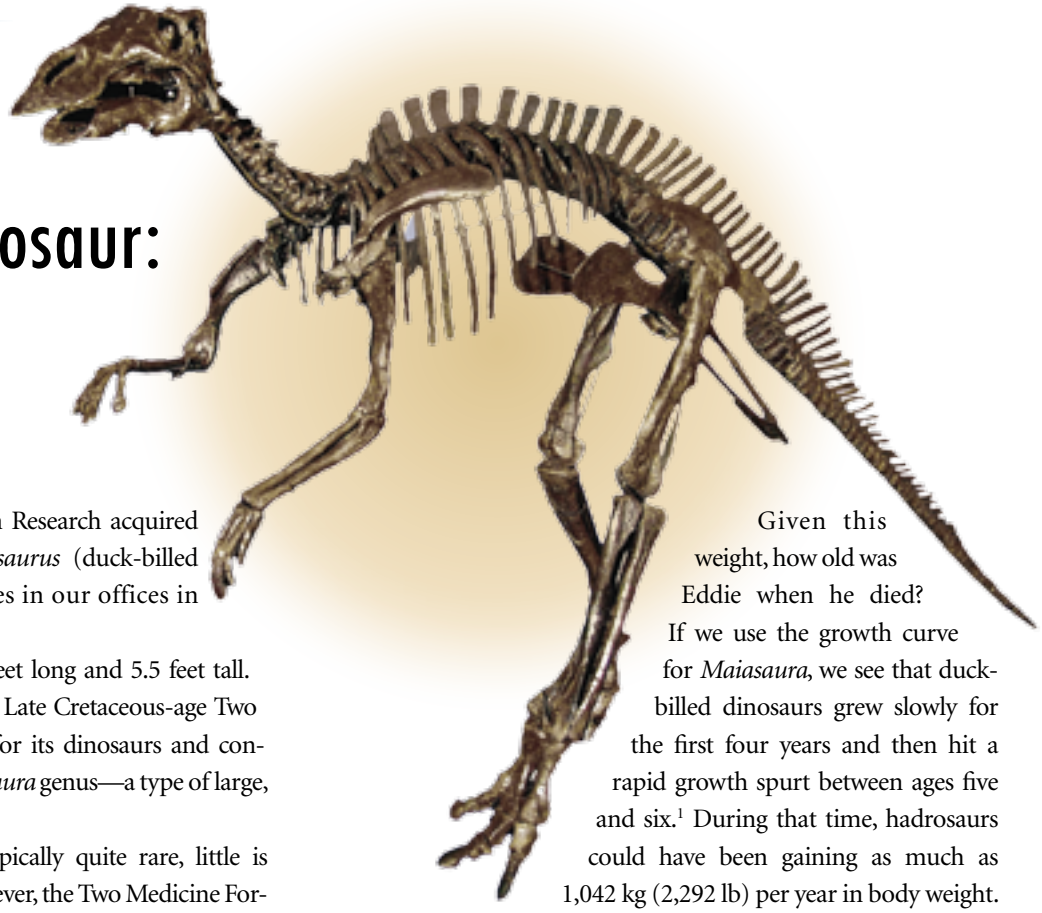
OCTOBER 27
Newcastle, OK
Woodland Hills Baptist Church
(F. Sherwin) 405.887.3877

OCTOBER 27
Denton, TX
Denton Bible Church
(B. Thomas) 940.297.6700

For more information on these events or to schedule an event, please contact the ICR Events Department at **800.337.0375** or visit **www.icr.org/events** or email us at **events@icr.org**

TIM CLAREY, PH.D.

ICR's Toddler Duck-Billed Dinosaur: EDDIE



In 2008, the Institute for Creation Research acquired Eddie, a rare juvenile *Edmontosaurus* (duck-billed hadrosaur). He currently resides in our offices in Dallas, Texas.

This "little" dinosaur is about 10 feet long and 5.5 feet tall. He was discovered in 1990 in Montana's Late Cretaceous-age Two Medicine Formation, which is famous for its dinosaurs and contains thousands of bones from the *Maiasaura* genus—a type of large, duck-billed dinosaur.

Because juvenile dinosaurs are typically quite rare, little is known about their growth patterns. However, the Two Medicine Formation is one area that provides ample specimens of the duck-billed *Maiasaura*—enough to allow scientists to plot their growth history.[1] *Edmontosaurus* and *Maiasaura* are very similar, falling into the same subfamily of Hadrosauridae, which likely places these two genera in the same biblical "kind."

Using the growth history of the *Maiasaura*, we can estimate Eddie's age. Because we don't want to damage the specimen by cutting a leg bone in half to count tiny growth rings (similar to tree rings), we'll use an equation to estimate his weight.[2] This formula is based on the circumference of the upper bone of the lower legs. Because bipedal (two-footed) animals put all their weight on their hind leg bones, scientists measure the femurs (thigh bones) of various animals at the midpoint where the bones are the thinnest. Based on data from modern animals, they then plot the circumference value against body mass on a logarithmic scale. Using these numbers, researchers can find a straight-line relationship and best-fit equation for all bipeds, including dinosaurs, using only the femur circumference. The resulting *biped equation* is:

$$\text{Body mass in kg} = (0.00016) \times (\text{femur circumference in mm})^{2.73}$$

The beauty of the circumference method is its simplicity—all we need for a weight estimate of a given fossil specimen is a leg bone, and leg bone fossils are often well-preserved.

So, how does Eddie weigh in? The circumference of the thinnest point of his femur is 167 millimeters. Placing this value into our equation gives a weight estimate of 187 kilograms, or 412 pounds (1 kg = 2.2 lb).

Given this weight, how old was Eddie when he died? If we use the growth curve for *Maiasaura*, we see that duck-billed dinosaurs grew slowly for the first four years and then hit a rapid growth spurt between ages five and six.[1] During that time, hadrosaurs could have been gaining as much as 1,042 kg (2,292 lb) per year in body weight. By the time they reached six or seven years old, they would have been nearly adult size at over 1,500 kg (3,300 lb) and presumably becoming sexually mature. An adult *Edmontosaurus* could reach 37 feet in length and stand about 18 feet tall!

Eddie's 412-pound weight places him in the four-year-old range, just before the onset of the growth spurt. A hadrosaur dinosaur of this age and size would have been a perfect candidate for Noah's Ark. Unfortunately, Eddie wasn't on the Ark—he died by rapid and catastrophic burial in sediment during the Great Flood, only to be found by paleontologists later and put on display as a witness to this judgment event.

God may have placed a pair of similar, four-year-old hadrosaurs on the Ark, knowing these dinosaurs were the perfect age and size for the journey. They would neither require much room nor eat too much during the Flood year. Upon leaving the Ark at age five, however, they would have required a lot of food as they hit their growth spurt. In addition, these dinosaurs would likely have become sexually mature right after leaving the Ark, able to quickly fulfill God's command to multiply upon the earth (Genesis 8:17). Thanks to dinosaurs like Eddie, we can further study life on Earth before and after the Flood. ●

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1. Erickson, G. M., K. C. Rogers, and S. A. Yerby. 2001. Dinosaurian Growth Patterns and Rapid Avian Growth Rates. *Nature.* 412 (6845): 429-433.
2. Anderson, J. F., A. Hall-Martin, and D. A. Russell. 1985. Long-Bone Circumference and Weight in Mammals, Birds and Dinosaurs. *Journal of Zoology.* 207 (1): 53-61.

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

The Solar System: Earth and Moon

JASON LISLE, PH.D.

When the Voyager 1 spacecraft reached the edge of our solar system in 1990, it turned its camera around and photographed Earth. From such a tremendous distance, the earth appears as a tiny bluish-white grain of sand lost in an ocean of black. This famous image of Earth is named the Pale Blue Dot. From a secular perspective, that is all Earth is—a tiny bit of rock and water in a vast and meaningless universe of chance. But in the Christian worldview, this pale blue dot is the most important planet in the universe.

Properties of Earth

Earth orbits the sun at an average distance of 93 million miles. Since it is convenient to compare other orbits to Earth's orbit, we refer to this distance as one astronomical unit, or AU. At one AU, it takes Earth one year to complete an orbit. Many units are defined in terms of Earth's orbital or rotational characteristics. Earth's solar day is 24 hours, and this is what we normally mean when we use the word "day" without any other qualifiers. Earth takes 23 hours and 56 minutes to rotate once, relative to the stars—a sidereal day.

Physically, Earth's properties are similar to the other terrestrial planets: Mercury, Venus, and Mars. These are all solid, rocky

Earth is the only planet known to have plate tectonics, and no other known planet has such an abundance of water. It appears that God constructed Earth with the built-in capacity to produce and experience a global flood.

worlds, orbiting relatively close to the sun. They all have mountains, valleys, rifts, canyons, and craters. Earth is the largest of these four planets in diameter—two and one half times larger than Mercury, just under twice the size of Mars, and only five percent larger than Venus. So, the sizes are not all that different. But despite these similarities, Earth is unique in many ways.

Uniqueness of Earth

Most significantly, Earth is the only planet known to contain living organisms. And they are ubiquitous. In virtually every environment on this planet, we discover creatures that flourish. This stands in striking contrast to the lifeless, barren surface of the other planets. Many of Earth's other unique qualities seem to be specifically designed to support such life.

Over 70 percent of Earth is covered with liquid water. No other known planet has such an abundance of water. Since water is an essential requirement for all known life, the presence of water on Earth seems to be a key design feature. Earth orbits at just the right distance from the sun for temperatures to allow for liquid water. Earth's atmospheric pressure is also just right for liquid water. All of these properties seem designed for life.

Earth's atmosphere has a protective layer of ozone that partially blocks ultraviolet radiation. Such radiation can be very damaging to living tissue; so this too is a design feature. Unlike Venus, Earth has a strong magnetic field. This field deflects harmful cosmic radiation, protecting inhabitants on Earth's surface. The strength of the magnetic field has been slowly but continually dropping since scientists have been able to measure it nearly two centuries ago. This drop is consistent with Earth's biblical age of around 6,000 years but is wildly inconsistent with the secular assumption of billions of years.[1]

Earth is tilted on its axis 23.4 degrees relative to its orbit around the sun. This causes Earth to experience seasons. From late March to late September, Earth is in the part of its orbit where its North Pole is tilted toward the sun. Those of us who live in the northern hemisphere observe that the sun appears higher in the sky than it does at other times, and we experience more hours of daylight. Since we receive greater accumulated solar energy at this time of year, our temperatures are warmer than they are in other seasons. From late September through late March, Earth is in the part of its orbit where the North Pole is tipped away from the sun. During this time, the southern hemisphere receives more heat and light from the sun, while northern hemisphere inhabitants see the sun lower in the sky and experience less than 12 hours of daylight. The seasons are *not* caused by the slightly elliptical orbit of Earth. On the contrary, Earth is slightly *closer* to the sun in the northern hemisphere winter.[2]

This tilt appears to be well-designed for life. If Earth were tilted less, the polar regions would receive less energy, reducing the habitable area of the planet. If the earth were tilted more, the seasons would become more extreme, potentially reducing plant-growing seasons and making the environment less hospitable.

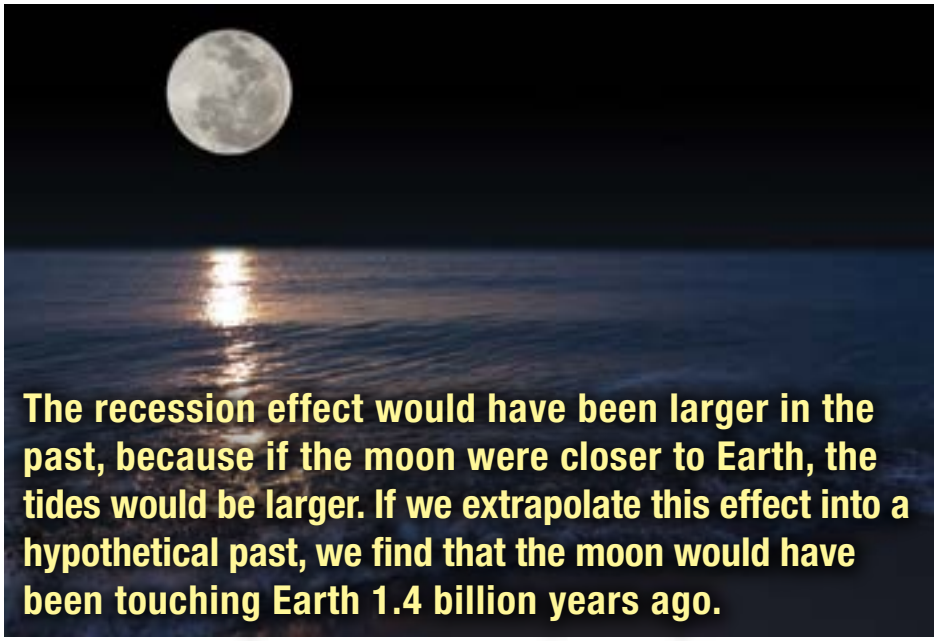
Earth is the only planet known to have plate tectonics. While other planets have tectonic activity as evidenced by volcanoes, their crusts are not divided into plates. Many creation scientists believe that Earth's continents were connected before the global Flood and moved apart during the Flood year. Geophysicist John Baumgardner's model of "runaway subduction" explains the global Flood of Noah's day in terms of catastrophic plate tectonics that apparently took place during the Flood year.[3] It appears that God constructed Earth with the built-in capacity to produce and experience a global flood. None of the other planets have substantial liquid water at present. And even if they did, they would have no mechanism for runaway subduction.

The Moon

Earth also has a large natural satellite—the moon. Earth's moon is the fifth-largest moon in the solar system. It is over one quarter the size of Earth in diameter. No other planet has a moon this large in proportion to the size of the planet. The moon aids life on Earth by inducing tides.[4] Tides prevent the oceans from stagnating, and they clean shorelines. The moon also provides light at night—it "rules the night" (Genesis 1:16), being far brighter than any other regular nighttime celestial object. No other planet has such a bright moon in its night sky.

The lunar surface is barren, rocky, and cratered. The moon has highlands that are heavily cratered. It also has lower, relatively smooth regions called *maria*. These maria (Latin for "seas") appear as the large dark regions in images of the moon. Apparently, they are large impact basins that have filled in with magma, erasing any previous record of cratering. Curiously, the maria are almost entirely on the Earth-facing side of the moon where they cause the visual impression of the "man in the moon." The moon has no substantial atmosphere, so its sky remains black even when the sun is up. Without an atmosphere to redistribute thermal energy, the temperature on the moon can exceed 200 °F during the day and drop to -280 °F at night.

The moon rotates slowly, taking 27.3 days to rotate once. This is also exactly how long it takes the moon to orbit Earth. For this reason, observers on Earth can only ever see one side of the moon. Some people have the impression that the moon does not rotate since we always see the same side.



The recession effect would have been larger in the past, because if the moon were closer to Earth, the tides would be larger. If we extrapolate this effect into a hypothetical past, we find that the moon would have been touching Earth 1.4 billion years ago.

But this isn't so. If the moon did not rotate (relative to the stars), we would see different sides of it as it orbits around Earth. The fact that the rotation and revolution of the moon have exactly the same period is called tidal locking.[5] Such a configuration is very stable. If the moon did not rotate at the same rate it revolved, Earth would induce land-tides on the moon, forcing it eventually to become tidally locked. All large and many small moons in our solar system are tidally locked.

The Uniqueness of the Moon

The moon has a number of distinctive characteristics. It is both 400 times smaller and 400 times closer to Earth than the sun is. This means that the moon and sun have about the same apparent size in our sky on average.[6] This makes total solar eclipses possible. Earth is the only known planet that can experience eclipses where its moon so precisely covers the sun.[7] This has made possible the discovery of the solar chromosphere. The chromosphere can only be seen by eye during a total solar eclipse.[8]

The moon orbits very close to the ecliptic—the plane of Earth's orbit around the sun.[9] All other large moons in the solar system orbit in the plane of their planet's equator except Triton, which orbits neither in the ecliptic nor the equatorial plane of its planet. This makes solar and lunar eclipses more common on Earth than they would be if the moon orbited around the planet's equator as other moons do. Yet, because the moon does not orbit *exactly* in the ecliptic, we do not have eclipses every month.

A Young Moon

As the moon induces tides on Earth, the planet rotates faster than the moon orbits and the tidal bulges get "ahead" of the moon. They then pull forward on the moon, causing it to gain orbital energy and move away from Earth. The effect is small but measurable—the moon moves away from the Earth by about 1.5 inches every year. The recession effect would have been larger in the past, because if the moon were closer to the Earth, the tides would be larger. If we extrapolate this effect into a hypothetical past, we find that the moon would have been touching Earth 1.4 billion years ago.[10] So, Earth and the moon cannot be older than that. Yet secular scientists claim that Earth and the moon are over four billion years old. The evidence from the recession of the moon is inconsistent with the secular age estimate. Of course, 6,000 years ago, the moon would have been only 730 feet closer to Earth. So, lunar recession is not a problem for the biblical timescale.

Conclusion

Of the planets in our solar system, Earth is uniquely designed for life, and the moon is uniquely designed to aid life on Earth. God chose to spend five of the six days of creation working on Earth, making it just the way He wanted it to be. All the other planets were created in one day—Day Four (Genesis 1:14-19).[11] It is as if God took extra care to create Earth.

Astronomers have now discovered hundreds of planets orbiting other stars, and it is likely that billions more remain undiscovered. Yet, of all the planets in the universe, Earth is where God chose to place the creatures whom He made in His own image. It is our planet where Almighty God, out of His great love for us, took on human nature, died our death, and rose in glory. Not bad for a pale blue dot! ●

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1. Based on physics' first principles, we would expect this to be an exponential decay. Current measurements are consistent with this. Secularists are forced to assume that the magnetic fields of planets are somehow "recharged" in a magnetic dynamo cycle. But such models are problematic. So far, the secularists have not demonstrated that magnetic fields can actually be maintained over billions of years.
2. Earth reaches perihelion (its closest point to the sun) around January 3, at which time our planet is 91.4 million miles away from the sun. In early July, Earth reaches aphelion (its farthest distance from the sun) at a distance of 94.5 million miles.
3. Baumgardner, J. R. 1994. Runaway Subduction as the Driving Mechanism for the Genesis Flood. In *Proceedings of the Third International Conference on Creationism.* R. E. Walsh, ed. Pittsburg, PA: Creation Science Fellowship, 63-86.
4. The gravity of the sun also contributes to tides. But the effect from the moon is much stronger.
5. Tidal locking is the simplest example of a resonance. A resonance occurs when two periods (such as an orbital period and a rotation period) can be expressed as a simple fraction. Tidal locking is a 1:1 resonance.
6. The moon's orbit is elliptical. So, the angular size of the moon can change by a few percent in our sky. The same is true of the sun since Earth's orbit is also slightly elliptical. Therefore, sometimes the moon will appear slightly larger than the sun and other times somewhat smaller.
7. Faulkner, D. 1998. The Angular Size of the Moon and Other Planetary Satellites: An Argument For Design. *CRS Quarterly.* 35 (1).
8. It is unsafe to look at the sun without eye protection, except at the moment of totality during a total solar eclipse.
9. The plane of the moon's orbit is tilted only 5 degrees relative to the ecliptic.
10. Secular attempts to ameliorate this problem (such as supposing that the recession rate is anomalously fast at present) largely involve denying the secular principles of uniformitarianism and naturalism. But without those principles, there would be no reason to suppose an old age for the Earth or moon in the first place.
11. The Hebrew word *kowkab* is translated as "stars" in Genesis 1:16 and includes planets that appear as wandering stars in our night sky. Hence, all planets except Earth were created on Day Four along with the sun, moon, and stars.

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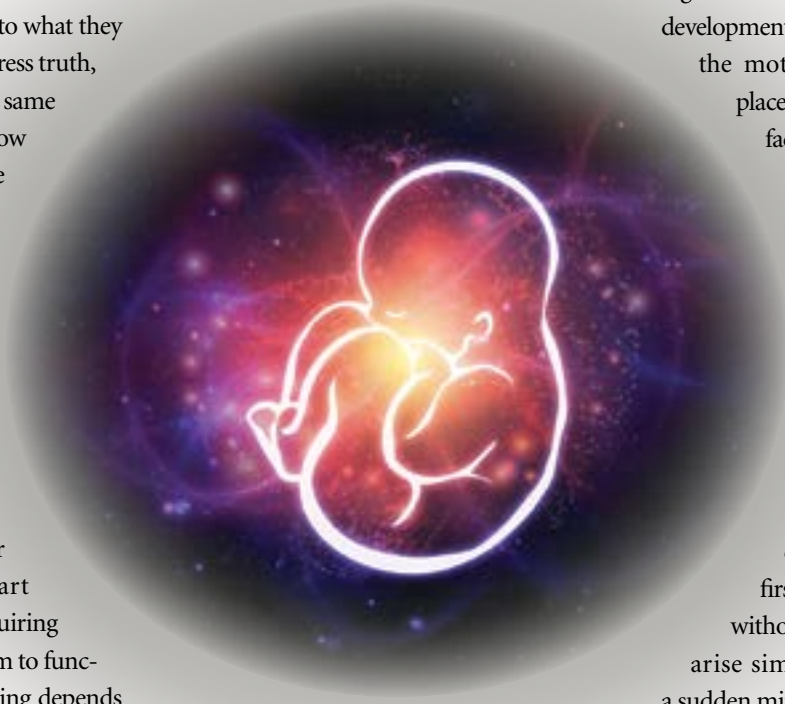
Interdependence: A Conversation Starter

BRIAN THOMAS, M.S.

The apostle Paul wrote in Romans 1:20, "For since the creation of the world His invisible attributes are clearly seen, being understood by the things that are made." This means, whether they will admit it or not, people know some of the essentials about God. Sadly, most do not admit to what they know, instead choosing to suppress truth, as Paul explains earlier in the same chapter.[1] Yet, believers who know the Creator as Savior can engage with those who know *about God* by asking key questions.[2] A meaningful conversation can begin by asking how interdependence arose in living things.

An interdependent system is one in which at least two parts mutually depend on each other for proper function. Sometimes one part needs another part without requiring anything in return for the system to function. For example, correct walking depends on feet, and correct speaking depends on the tongue. It's easier to concoct ways that nature, apart from a Creator, might have generated a part on which another part or system depends. For example, maybe early humans swung from trees, so they didn't need to walk with proper feet until later. Or maybe early humans communicated nonverbally while they were supposedly evolving into full humanity, so they didn't need articulate tongues. When it comes to explaining the origins of an interdependent system, however, these conjectures strain naturalistic scenarios—that by definition exclude God—past the breaking point.

A classic example of interdependence is that of DNA and proteins. Within each cell, proteins manufacture, repair, and access DNA. So, DNA depends on proteins. But DNA provides the blueprints for protein structure, so proteins also depend on DNA. These two system parts stand and function only when working together, and they fall apart when separated from each other.



Relationships like this set up a "chicken-egg" origins dilemma. If both parts were required from the start, then how could one part have been added long after the other part was in place? Sometimes, asking people a question like "Which part came first?" is all they need to begin a critical evaluation of their faith in nature-only origins. Once in doubt, they are more likely to consider a perspective that includes God in the answer. In this way, studying the details of an interdependent biological system equips Christians who want to challenge anti-creation views.

If someone is unfamiliar with cellular components like DNA and proteins, he or she might better relate to scenarios involving larger body parts like the heart and placenta. A pregnant woman's placenta secretes progesterone, a hormone that signals her tiny baby's cells to take up *less* cholesterol. Cholesterol is a vital component of all body cells, including heart cells, and the placenta regulates cholesterol levels. Thus, the healthy development of a baby's heart depends on the mother's placenta. Likewise, the placental cells would fail to manufacture progesterone or perform their other vital tasks without a blood supply, which the mother's heart generates. Thus, the placenta and heart function interdependently to knit a baby.

So, which came first? The heart could not have come first since it would not have formed without the placenta. But if the placenta came first, it could not have worked without a heart. Both organs had to arise simultaneously, pointing toward a sudden miracle!

Everyone knows—even if they ignore it—that something or someone greater than the creation must have caused its genesis. Creation was God's most spectacular miracle, and all will be held accountable for failing to attribute this work to Him.[2] Engaging in conversations about interdependence with those who suppress this knowledge may be all it takes to challenge them to confront what they already know. ●

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1. "For the wrath of God is revealed from heaven against all ungodliness and unrighteousness of men, who suppress the truth in unrighteousness" (Romans 1:18).
2. "And you forget the LORD your Maker, who stretched out the heavens and laid the foundations of the earth." (Isaiah 51:13).

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Oil, Fracking, and a Recent Global Flood

TIM CLAREY, PH.D.

Oil resources are in the news nearly every day, with discussions on both the pros and cons of oil "fracking." Approximately 10 percent of the world's recoverable oil reserves are in shale-rich rocks that can only be accessed by hydraulic fracturing (i.e., fracking).[1] A 2013 study estimates there are about 345 billion barrels of recoverable shale oil. These same shale-rich rocks also account for up to 32 percent of the world's natural gas reserves.[1] The amount of gas recoverable from shale is estimated at around 7,300 trillion cubic feet in volume.

When we stop to consider the early origins of these vast reserves of oil and gas, it's apparent that these fuel resources are not as "old" as many secular scientists believe. But in order to understand the age of oil, it's important to start at its source.

Geologists have done many studies over the years, testing the oil produced around the world for its chemical components. They have found that most oil and gas is derived from shale-rich source rocks—rocks abundant in organic debris trapped during deposition. The chemical signatures of both oil and gas often match—much like fingerprints. Shale is the most common sedimentary rock and can serve both as a "seal" and a source rock for oil. Liquids and gases can only pass through shale layers very slowly due to the low permeability of these clay-rich rocks, which tightly seal the oil that seeps into and becomes trapped within them. Hydraulic fracturing creates conduits that allow oil and gas to leak out of these "tight" formations.

Where does the oil and natural gas originate? It all starts with the deposition of organic debris. Many oil shales commonly contain upward of five percent total organic carbon (TOC). Most organic compounds found in oils seem to match up with marine algal deposits (Type 1 oils) and marine planktonic deposits (Type 2 oils). Both types of deposits produce oil and/or natural gas as the rocks are heated by the earth's natural thermal gradient. These deposits (rocks) just have to be buried deep enough to "cook" and thus generate the oil and gas. Researchers assume that the rocks must be buried between 8,000 and 15,000 feet deep and reach temperatures of 180–250°F in order to generate oil from organic material. This temperature range is commonly called the "oil window," and local variations in geothermal gradient can shift this window up and down considerably. For example, areas near volcanic activity generally have higher temperature gradients, so nearby sediments may pass through the oil window at relatively shallow depths. If the organic-rich rocks pass through the oil window and continue to cook at higher temperatures, the liquid oil will break down further, leaving only natural gas deposits.

Today, nearly all organic debris is consumed by scavengers or micro-organisms before it becomes trapped in sediment. With this in mind, how is it possible that enough organic debris was ever trapped to produce all of the world's oil?

The answer is the great Flood, an event that rapidly deposited thousands of feet of sediments across the continents, burying and placing huge amounts of marine sediments—containing algae and plankton—on the continental crust. This process trapped the organic debris faster than it could naturally decay. In many cases, like in the deep sedimentary basins in Wyoming, up to 30,000 or 40,000 feet of sediments were deposited during the year-long Flood—and most of these deposits were clay and shale.

The depth of burial must have been enhanced by rapid tectonic subsidence, as well as simultaneous formation of adjacent mountain uplifts. These shifts placed the organic-rich shales either in the "oil window" or in the higher temperature range that "cooked out" the oil and changed it to natural gas, as mentioned earlier.

Unfortunately for the oil seekers, the organic-rich shales that appear to produce most oil and gas, chemically referred to as hydrocarbons (i.e., simple organic compounds), are mixed and dispersed throughout the geologic strata. This creates complexity—strata with a "club-sandwich" appearance—when searching for oil deposits. Traps or domes (i.e., geologic formations

where oil and gas collect and are held) have to be located in the right positions above and adjacent to the organic shales, and the shales have to be in the so-called "oil window" to effectively source the traps.

The Middle East is a prime example of an area that has greatly benefitted because it had just the right conditions to both generate and trap oil. For instance, along with abundant, organic-rich shales that were deposited during the great Flood, this area also has sedimentary rocks with large folds that formed toward the Flood's end and trapped the oil as it was later generated. The result? Billions and billions of barrels of oil were trapped in this region.

Geologists are constantly searching for oil traps, even in the shales themselves, using increasingly more capable technology. Through wells and using seismic data, they "see" inside the earth as they search for potential new traps around the world. They also employ horizontal drilling techniques to tap into the source-rock shales, enhancing production with sophisticated, hydraulic rock-fracturing. These new technologies have greatly benefitted the economies in Texas, Ohio, and North Dakota, where shale oil is quite plentiful.

Critics of recent creation and the global Flood often try to argue that the sheer volume of oil found cannot be explained by a single ocean full of organic debris deposited in one year-long event. However, the volume of organic material in the ocean at any given time is immense.[2] By studying the organic richness of the present ocean, creation scientists have shown that all of the oil found—and yet to be found—could easily be deposited and explained by a single year-long global Flood.[3]

Nevertheless, many geologists never think through this entire process. They simply focus on searching for traps or rocks folded into domes where they know the oil is likely to be concentrated, without regard for the unusual and specific processes required to preserve the vast amounts of organic debris in the rocks in the first place.

Often, secular geologists insist that most organic oils were generated millions of years ago—even 150 million years ago—and have been preserved and trapped under great pressures ever since. This is a false assumption that is almost never thought through logically. If Earth were truly that old, the oils would have been destroyed by bacterial action, and the geologic pressures would have long since dissipated. We know that oil at the surface is quickly consumed by bacterial action—literally eaten—like in the 2010 Deepwater Horizon oil spill in the Gulf of Mexico.[4] We also know that bacteria live in virtually every environment on Earth, even at great depths in the ground. So, it is reasonable to assume any oil beyond a few thousand years old would be totally degraded or consumed by bacteria by now. The oil simply can't be millions of years old—organic compounds cannot last millions of years in any natural environment. Thus, there shouldn't be any ancient oil anywhere!

In spite of false assumptions about ancient oil, secular geologists continue to drill, without asking or answering real questions, because the black gold is there waiting for them. Each year, millions of barrels continue to be found in conventional traps and in unconventional "tight" shales through fracking. This abundance and concentration of oil in our world clearly point to the hand of God and the recent Flood.

Global oil generation is another example of a process that could only have occurred because of the extraordinary burial conditions present during the recent great Flood. Most secular petroleum geologists deny the Flood, even though they are witness to this evidence every day as they search for oil. We can be thankful for God's providence in creating oil, even through a catastrophic, global judgment—oil that now provides much-needed energy for our present world.

By studying the organic richness of the present ocean, creation scientists have shown that all of the oil found—and yet to be found—could easily be deposited and accounted for by a single, year-long global Flood.

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Soft-Sediment Deformation: Recent Flood Evidence

JOHN D. MORRIS, PH.D.

Years ago, Dr. Steve Austin and I wrote a technical article on tight folds in sedimentary rock as evidence for recent creation. The original article, which was awarded the best paper at the 1986 International Conference on Creationism, contained two studies, one of which is abridged here.[1] The evidence we presented then is just as relevant today for showing that Earth's geology clearly supports the biblical record.

Introduction

Evolutionists and creationists have different views on the origin of sedimentary rock strata. Evolutionists, who uphold the uniformitarian doctrine of 19th-century geologists, suppose that sediments were deposited slowly over millions of years and then hardened into sedimentary rock. This means that soft sediments, however they accumulated, would surely have lithified (hardened into rock) over excessively long periods of time. However, some of these rocks seem to demonstrate the opposite—these layers were clearly deformed *before* they had time to lithify.

Creationists who hold the catastrophist doctrine of Scripture propose that most sedimentary strata were deposited rapidly by Noah's Flood. They may have undergone deformation soon thereafter, and the total time span of this process represents only thousands of years.

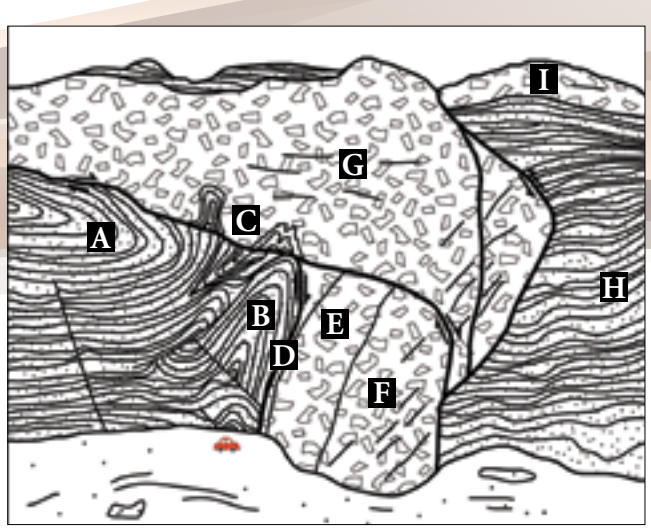
Stratigraphy

A spectacular exposure of a thick stratigraphic sequence (a group of rock layers) occurs at Split Mountain in Anza-Borrego Desert State Park in eastern San Diego County, California.[2, 3] The layers tilt at 20 degrees to the southwest and can easily be seen while driving by them laterally, with all 17,000 vertical feet in plain view. The sediments in these layers were rapidly deposited by moving water and later exposed by tilting and subsequent erosion.[4]

Tight folds in the strata clearly indicate that the tertiary sandstone remained in a non-lithified (soft) condition until faulted and folded in the late Pleistocene age several million years after deposition, according to conventional dating. Yet the conditions were ideal for the sediments to lithify (harden) much more quickly than these dates indicate—deep burial (under thousands of feet of sediment) would have consolidated the grains and provided a proper cement to bind them together. The fold geometry clearly indicates the strata were still in a soft, unlithified condition at the time of deformation![5, 6] This leads to the conclusion that deformation and subsequent hardening could not have happened as long ago as millions of years.

Evolutionists have failed to explain how millions of years could have passed while allowing this sedimentary sequence to escape lithification and remain in a soft state, despite deep burial. To justify the passing of so much time, they believe that the sediments were first lithified and then were tightly folded later. They claim that, when deeply buried, rocks can slowly deform extensively. But there is a limit to how much solid rock, notoriously weak under tension, can bend without breaking. And the outer half of each layer would undergo tension at every single bend, leading to breakage. As illustrated in the accompanying sketch and photograph, although these layers *were* bent excessively, there is no evidence of broken cement grains. Instead, it appears the strata flowed as mud or deformed plastically. All of this leads to the better interpretation that the Split Mountain formation deformed while still soft in a bending "event" rather than slow "creep." It is clear that the vast ages assigned to the strata are mere assumptions and that the uniformitarian interpretation of the deformation is incorrect. The following images and captions explain what really happened.

Photograph showing extensive deformation within the Split Mountain Formation. View is of the east side of Split Mountain Gorge looking at the west side's cliff and slope, showing numerous soft-sediment deformation features.



Sketch of the east side of Split Mountain Gorge looking at the west side's cliff and slope, which shows numerous soft-sediment deformation features. Zones labeled by letter are explained below. The automobile at the base of the cliff provides scale, and its position matches that of the Jeep in the photo. The concave-upward nature of the lowest fault surface (shown as a bold line between areas labeled A, B, C) implies that the hanging wall (upper side of the fault) became physically separated from the footwall (lower side of the fault) when about 400 feet of vertical slip occurred on the fault. This gap, or mismatch, produced a trench-like hole into which overlying material fell or flowed.

Zone A: Overturned strata of marine sandstone. The force of impact from the downdrop of fault block G pushed horizontally against the unlithified sandstone, overturning the strata.

Zone B: Underturned strata of marine sandstone. Drag caused by the rapid fall of block F severely disrupted zones D and E and underturned the unlithified sandstone strata in B, producing this spectacular fold.

Zone C: Mushroom-like masses of sandstone intruded into the boulder breccia (a sedimentary rock made of older, broken rocks). Between zones A and B, the sandstone was neither overturned nor underturned but was injected into the down-faulted block G. Individual sandstone strata in these "mushroomed" masses have severe plastic deformation.

Zone D: Mixed zone of sand and boulders. Intense shearing of the down-faulted block F against the zone B disrupted both sand and boulders, producing the mixing of materials. The sand grains and boulders (sandstone and boulder breccia) could not have been lithified at the time of faulting.

Zone E: Sheared boulder breccia. Shearing of block F destroyed remnant bedding, rotated individual boulders, and homogenized the constituents of the boulder breccia.

Zone F: The hole into which block F fell becomes narrower as it goes deeper, which produced a space issue and contributed to the deformation of zones B, D, and E.

Zone G: The wider part of the hole above block F was filled by the fall of a second larger block that deformed zones A and C. Some leftover or remnant bedding still exists in block G, shown by line segments.

Zone H: Slightly deformed marine sandstone forming the right side of the fault.

Zone I: Undisturbed sedimentary boulder breccia overlying the marine sandstone immediately underneath.

The remnant bedding of the middle-marine sandstone is in places tightly folded, overturned, inverted, and injected but rarely broken by secondary faulting as might be expected if the rock beds were in a rigid state during deformation. Thus, data require that the beds had not yet had time to harden into rock and that they deformed while still in a fresh, plastic state.

Rapid emplacement of the boulder breccia is demanded by the following: 1) the presence of a highly sheared, fine-grain zone immediately underlying and/or adjacent to the overhanging fault, 2) remnant bedding of the boulder layer having been broken on impact, and 3) the fact that an instantaneously created fault gap will not stand empty in the subsurface.

Evidence for Soft-Sediment Deformation

The conventional dating assigned to the lowest Pliocene, marine sandstone of the Split Mountain Formation assumes an age of several million years. The age assigned to the soft-sediment deformation is middle or late Pleistocene—within the last million years. This dating system assumes that sediments, in a state of deep burial, stayed soft and pliable for millions of years or that the hard, brittle rocks bent with virtually no breaking or cracking! The rocks, however, tell us a different story—one in which the recent global Flood laid down immense deposits of sediments in a short amount of time. Soon after, the subsequent folding of these sediments, while they were still unlithified, produced the dramatic deformation we observe today. God's hand was in the Flood event…the rocks bear witness to this cataclysm and still speak to us today.

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Q: Don't Grand Canyon Rocks Showcase Deep Time?

BRIAN THOMAS, M.S.

A: Most Christians probably perceive the immense rock layers displayed in Arizona's Grand Canyon as icons of "deep time," marking the passing of millions of years. For example, respected Christian apologist William Craig wrote in 1974 that "the beautifully layered sediments evidence a slow process of formation."[1] Did beautiful layers like these require deep time to form? Not according to field observations or lab studies. A violent mudflow from a Mount St. Helens eruption deposited fine layers in less than a day.[2] And water flume studies recreate the fast-flow rates that deposit particles, creating layers in moments.[3]

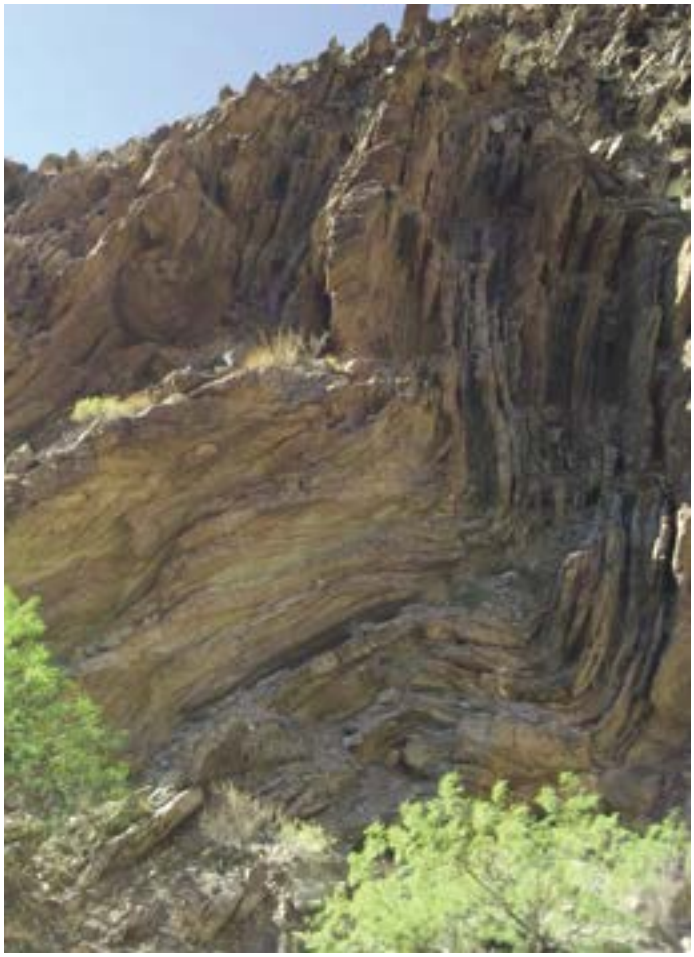
But even without these live studies, clues within Grand Canyon rocks point to catastrophic water deposition. In August of this year, I rafted down the canyon, taking note of four clues that refute a deep-time interpretation of the canyon's existence.[4] I learned that instead of illustrating deep time, the Grand Canyon layers showcase immense catastrophe.

The first clue against "a slow process of formation" is the canyon's fossils. The Coconino Sandstone, conventionally interpreted as a windblown sand dune deposit, contains fossil trackways likely made by some kind of lizard.[5] The footprints preserve claw marks, which is expected if the creature walked in *wet* sand. Also, fossil shells from extinct sea creatures called nautiloids inhabit the base of the Redwall Limestone.[6] These also appear in the same limestone layer far removed from the canyon, implying that one huge underwater mudflow deposited them all. How could any *slow* process bury countless strong-swimming nautiloids and orient them to a single flow direction?

A reptile or amphibian left claw marks in what must have been wet undersea sand, which later hardened into Coconino Sandstone.

Image: Kyle Justice, Awesome Science Media

The second clue is soft-sediment deformation. Our trip included a guided tour of Carbon Canyon, one of many side canyons. There, we found entire stacks of sandstone layers tightly bent. Clearly, powerful tectonic forces uplifted and warped freshly deposited, soft, moldable land areas. If they had lithified (hardened into rock) over millennia, the brittle rock would have broken and fractured instead of bending under pressure. This incredible clue—as well as the countless fossils—implies unimaginable power that is easy to associate with the Genesis Flood.



Catastrophically rapid tectonic motions likely deformed soft-sediment layers that later hardened into sandstone in Carbon Canyon, one of Grand Canyon's side canyons.

Image: Lucien Tuinstra

Sharp, flat contacts between rock layers provide the third clue that refutes deep time in Grand Canyon. If thousands of years transpired after the completion of one layer and before a different layer was deposited over it, what would we expect to see? The following evidences would surface: a) Chemical weathering on the long-exposed rock, b) semblances of soil profiles that occur on land surfaces today, and c) erosion ruts where thousands of years' worth of water runoff would have etched grooves and valleys. Imagine the drastic effects of erosion that we should see between each layer if millions of years separate them. No such features present themselves between most layers in the canyon. These strata extend remarkably flat for countless miles, telling of continuous deposition.

The clues so far yield a powerful implication. If watery catastrophe deposited each rock layer and its fossils and if no traces of long ages like erosion ruts lie *between* the layers, then it appears that a single, mega-catastrophe quickly deposited *all ten* of the Grand Canyon's remarkably uniform upper strata—thousands of feet thick.[7]

Grand Canyon rock layers show uniform thickness. *Image: Brian Thomas*

And what about their uniform thicknesses? Textbooks teach that Earth's tectonic plates move slowly, at rates comparable to fingernail growth. Textbooks also tell us that sediments drifted down to the bottom of lakes or oceans, accumulating at the rate of one foot per several million years. Rock layers resulting from these two deep-time premises would have varying thicknesses as continents slowly tilted over time. Perhaps they would look like vast wedges. Instead, I saw even strata thicknesses for mile after mile, findings again consistent with the idea that a tremendous watery catastrophe deposited the ten strata in a very short time.

The fourth and final clue showcasing rapid catastrophe comes from "flat gaps," like the canyon's angular unconformity.[8] This is "an erosion surface which has older strata below, dipping at a different (usually steeper) angle than the younger strata above."[9] For example, in some areas of Grand Canyon, the Tapeats Sandstone overlies a tilted shale layer that, in other places, lies below many tilted intervening layers. Where did the missing layers go?

Author examines the "Great Unconformity," an erosional surface below the overlying Tapeats Sandstone where 500 million years supposedly elapsed without a trace. *Image: Brian Thomas*

If those intervening layers were deposited over hundreds of millions of years, then the flat gap represents a many-million-year hiatus. The problem is that no evidence of eons presents itself. The layers lie flat and smooth—without signs of everyday erosion. In other words, if chemical weathering and erosion ruts would form between two layers separated by only hundreds of thousands of years, then how much more would form after hundreds of millions of years? And yet no weathering or everyday erosion appears at the angular unconformity that I saw—just flat, sharp contacts. Although flat gaps represent gaps in rock layers, they do not appear to represent gaps in time.

The magnificent Grand Canyon is filled with prime evidence—fossils, bent strata, sharp contacts, and flat gaps—that its gargantuan rock layers resulted from tremendous catastrophe, not deep time.

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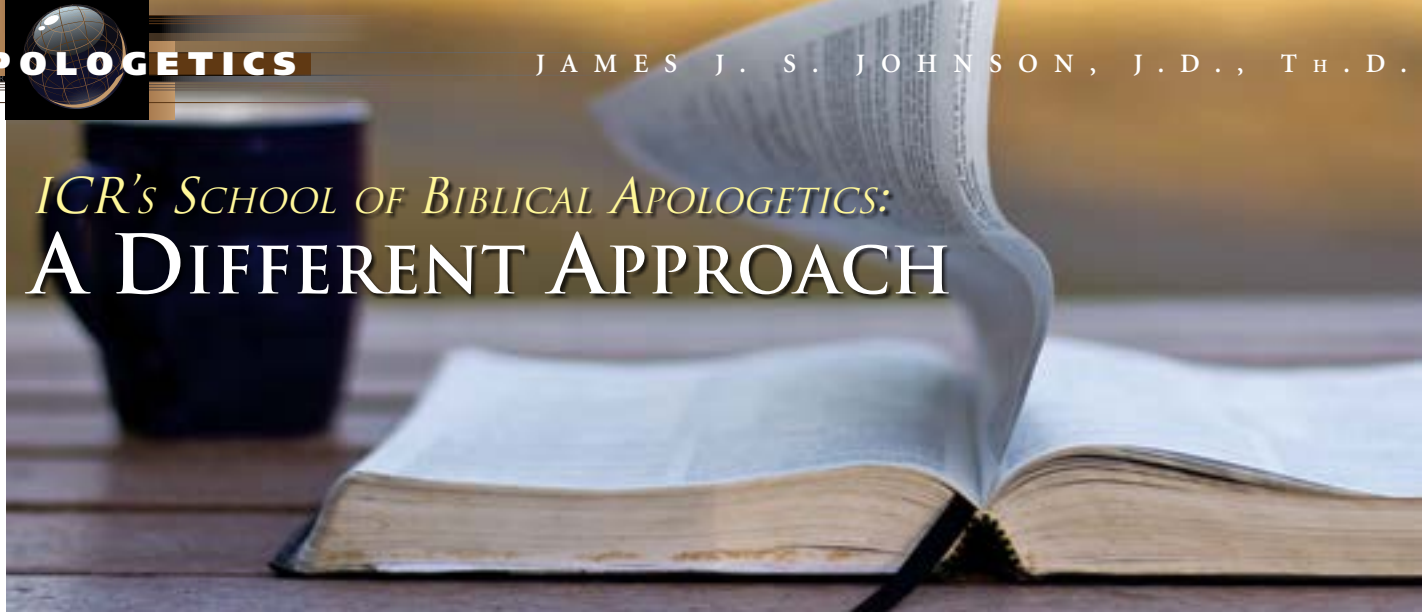

ICR's School of Biblical Apologetics: A Different Approach

The Christian world overflows with schools and seminaries that teach the particulars of the Bible. So why did the Institute for Creation Research open its own apologetics school in 2009? For the simple reason that ICR offers an emphasis that is sadly missing in many Christian educational institutions these days—a commitment to biblical creation tenets.

ICR's School of Biblical Apologetics (SOBA) teaches biblical education and apologetics with dedication to distinctive biblical creation tenets and does so with the credibility of more than 40 years of scholarship, multidisciplinary research, and ministry experience.[1] This teaching is framed by the priority that the Lord Jesus Christ is preeminent in all things (Revelation 4:11). SOBA's Bible-honoring faculty is committed to the truth of Genesis and agrees with ICR's biblical tenets regarding the creation account, Adam's original sin in Eden, and the global Flood. As its name proclaims, SOBA promotes biblical apologetics, a phrase chosen to emphasize the real source of knowable truth—Holy Scripture.

Yet, SOBA is not a "classical apologetics" school. Such schools may teach what they call "Christian apologetics," but their curriculum often emphasizes how one particular Christian says one thing about a given subject, this other Christian teaches that, and another explains it in yet a different way. In the tradition of the closed-Bible "rationalism" of the deists, classical apologetics tend to emphasize the vocabulary of theistic philosophy and spend less (or no) time using Bible concordances and interlinear Bibles in research.

Furthermore, unlike ICR's faculty, many classical apologetics proponents are theistic evolutionists because their epistemology (understanding of truth and how to know it) is flawed. Many claim, "All truth is God's truth" and then glibly swallow evolutionary Big Bang speculation as if it were as true as God's Word! This approach to apologetics fails because it attempts to "defend truth" before learning what is really true.

Classical apologists frequently blend the fallible findings of modern science with their biblical interpretation by equating the revelation found in nature with that provided by Scripture. But nature is not "the 67th book" of the Bible. Nature is fallen. Nature is not completely known or completely knowable. Only the Bible is a complete and perfect source of truth. Scripture has unchanging objectivity because it is composed of readable words that God selected to provide true information.

Moreover, scientific knowledge is almost always incomplete because scientists are not omniscient. Many temporal facts that are accepted as true are transitory—they change with time! Thus, what we can learn from "science" is not quality-controlled by omniscience and immutability as the truths in Scripture are. Yes, science has a purpose, but science cannot replace the Bible as God's written revelation of perfect truth. The literal text of Scripture is inspired—it has power in it!

How is this relevant to SOBA's curriculum?

SOBA's training emphasizes commitment to real truth by intentionally following Ezra 7:10: "For Ezra had *prepared* his heart to *seek* the Law of the LORD, and to *do* it, and to *teach* statutes and ordinances in Israel [emphasis added]." Note the four priorities for godly educators emphasized in that verse: (1) preparing his/her heart to honor God, (2) seeking out (researching, analyzing) God's truth, (3) personally doing (i.e., practicing) God's truth, and (4) teaching (i.e., carefully transmitting) it to others. SOBA's curriculum focuses on each of these categories.

Are those four priorities all it takes to teach and defend God's truth properly? No. The teacher is the subject for those action verbs and therefore is responsible to drive the focus based on God's truth. The teacher has no truth to teach unless and until God provides it! God must reveal "the law of the LORD." Until He does, we don't and can't know it.

Biblical apologetics, therefore, start with recognizing and analyzing the perfect revelation record of truth that God has given: Scripture. Comprehending that foundation is where ICR's SOBA curriculum begins.[2]

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2. This is adapted from an online lecture in a SOBA course.

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THE FIRST COMMISSION

HENRY M. MORRIS IV

The first record of God's great love toward mankind is expressed in the first chapter of the first book of the Bible. "And God blessed them, and God said unto them, Be fruitful, and multiply, and replenish the earth, and subdue it: and have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth" (Genesis 1:28). This first command to humanity is preceded by the Creator's direct blessing and establishes a pattern seen throughout the rest of Scripture. Even on those occasions when God says, "Thou shalt not…," He does so to guide and protect those He loves. The commands of the Lord are always founded on and wrapped in love, for He only desires the best for us.

But this first command to humanity—perhaps best known as the Dominion Mandate—was given both as a blessing and a responsibility. Adam and Eve would soon discover that God's instructions encompassed far more than they could have imagined at the time. Not only were they expected to begin populating the earth, but they were also commanded to manage the resources God had placed around them. In this way, God would receive glory from His new creation while providing mankind the privilege of sharing in the earth's magnificent bounty.

This mandate has never been revoked and was even renewed and expanded to Noah and his sons soon after the great Flood (Genesis 9:1-7). Ultimately, when God's plan of redemption and judgment is complete, He will destroy this world and create "new heavens and a new earth" (2 Peter 3:10-13). But until that time, man is still expected to fulfill God's command to care for this world and rule over it.

The military terminology to "subdue" and "have dominion" should not be misunderstood as God's permission to abuse and destroy. Rather, God clarifies His intent as one of true stewardship of His creation: "And the LORD God took the man, and put him into the garden of Eden to dress it and to keep it" (Genesis 2:15). Adam was given the responsibility to tend (dress) and cultivate (keep) God's creation, indicating a special care and concern for the earth's resources. But proper "dressing" and "keeping" cannot occur without a thorough understanding of the underlying processes and functions. We know this as "science" in today's terms, and, in the true biblical sense, scientific study was expected by God to accomplish this very first commission to mankind.

Science lies at the very heart of ICR's work. Apart from the study of God's Word, our research is the catalyst that sparks our entire ministry. Thanks to our supporters, ICR scientists are uncovering remarkable evidence that confirms the Bible's accuracy and authority. Our current biology research, in particular, is making exciting progress, showing that the genetic makeup between creature groups is truly unique (e.g., "after their kind") and that measured mutation rates—a pillar of evolution—show that life can be no more than thousands, not millions, of years old.

For over four decades, ICR has championed innovative research that demonstrates evidence for creation as understood in Scripture. These, and many other projects, have been made possible through the generosity of fellow Christians who believe in our mission and have been blessed by our work. Won't you prayerfully consider how you can partner with us? Your tax-deductible gifts will make a bigger difference than you may imagine and will be put to good use in fulfilling mankind's first commission to stewardship for the glory of our Creator, the Lord Jesus Christ. ●

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

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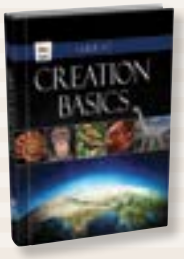
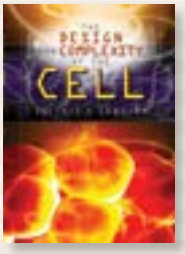
I am so blessed with ICR's ministry through *Acts & Facts*. Since I was in high school, I've been very fond of reading your articles, and they helped to strengthen my faith in God. Now, I am a B.S. forestry student in the Philippines. ICR continues to provide me with accurate scientific evidences to press on to share my faith with my university friends and to stand firm on God when my professors would question my faith and teach evolution and other philosophical arguments. I am very thankful that my dad subscribed to *Acts & Facts*. I am praying that after my college, hopefully, I might study online with ICR.

— *M.T., Philippines*



I'm lying in my cozy dorm room studying some biology and am so thankful for the creation book [*Guide to Creation Basics*]… and that I had the opportunity to read some of it prior to something I'm reading in my textbook tonight. Just thought I'd share what I thought is a huge contradiction, not just from a believer's standpoint. [The textbook] reads, "The superb fit of structure to function in the living world is no accident. Life has existed on earth for over two billion years, a long time for evolution to factor changes that better suit organisms to meet the challenges of living." What I learned from the creation book…(against what my textbook is telling me) is: 1) Two billion years? I don't think so... and 2) They're right about one thing—the living world is no accident. Our Creator God spoke everything to be, for His purpose, glory, and satisfaction. Where I see a contradiction here is in them trying to give evolution as a solution to what they've already defined as "no accident."

— *N.C.*

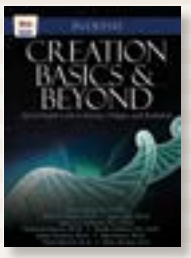


My education has greatly benefited from using the materials that ICR provides. I have been receiving *Acts & Facts* for over four years now, and I own Dr. Jeffrey Tomkins' book *The Design and Complexity of the Cell*. I am currently attending Pensacola Christian College, pursuing a Master's Degree in Science Education, Curriculum, and Instruction. ICR's materials have greatly helped my research. One aspect of *Acts & Facts* that I really enjoy is Dr. Jake Hebert's physics articles. I was so sad to see Dr. Larry Vardiman retire. But I am glad someone capable took his place. I enjoy Dr. Hebert's articles because there are so few creationist physics resources available. I wish there was a greater emphasis on physics from a creationist perspective.

— *T.P.*

I wish you would put together a video about the Grand Staircase and the national parks connected to it—primarily Grand Canyon, Zion, and Bryce. I have been trying to see how it all relates to the flood and subsequent Ice Age. I purchased a video about the parks called *Explore the Grand Staircase,* which was very well done, except for the millions/billions of years nonsense at the beginning and the end. I teach geology to third and fourth graders and would like to show this to them (and I may just skip those parts), but it would be so good to have something like that done from a creationist perspective.

— *E.F.*



Reading Dr. Lisle's theory on distant starlight is very refreshing. I have read books by ID authors, which advocate the Big Bang, and I have read books and articles that seem to advocate a biblicized version of the Big Bang… I remember reading Dr. Lisle say that we have to break away from any naturalistic interpretation of science. That includes the Big Bang and related theories. I love reading his articles—they're always so well written. I really hope he does more research on it. I think he should write a book about his theory as well.

— *T.P.*

Correction to the *Acts & Facts* August 2013 edition in the article "The Solar System: Mercury" on page 11, right-hand column:

The article states: "The sun then gradually resumes its forward path, shrinking and fading a bit as Mercury moves toward perihelion."

The article should read: "The sun then gradually resumes its forward path, shrinking and fading a bit as Mercury moves toward aphelion."

Have a comment?

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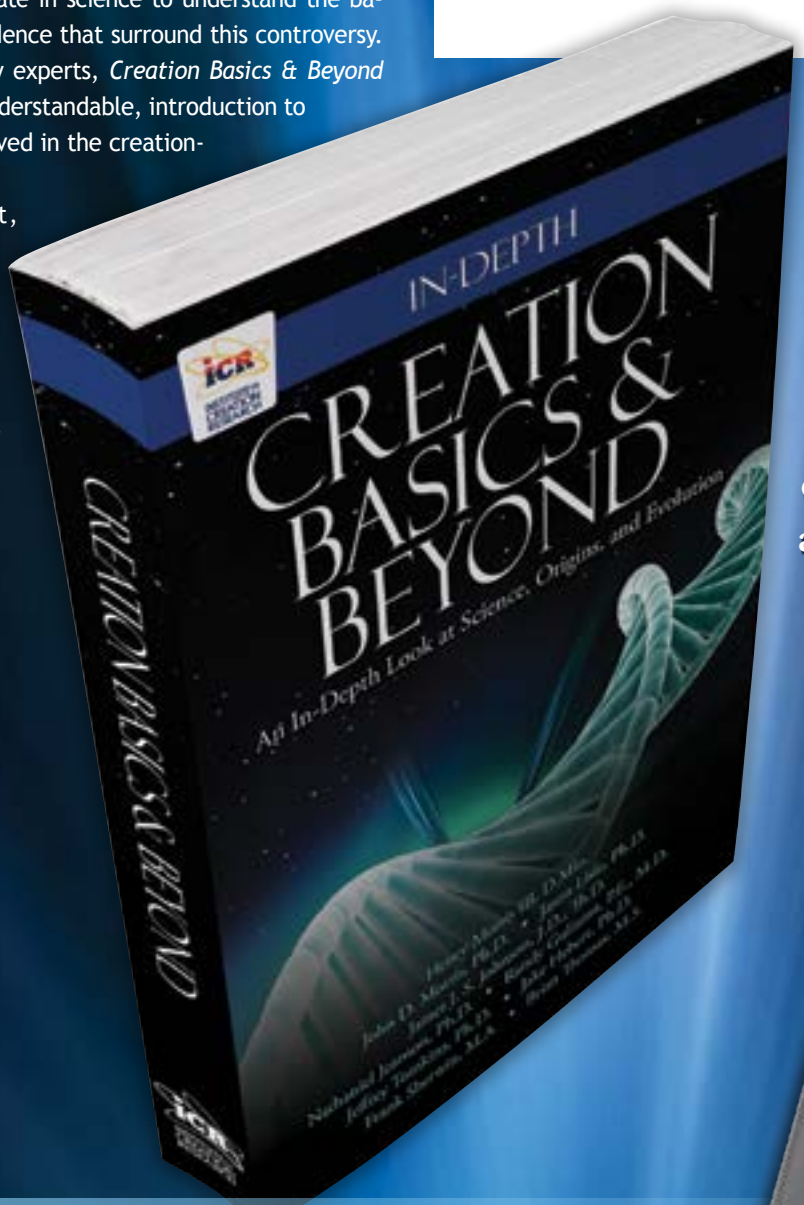

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