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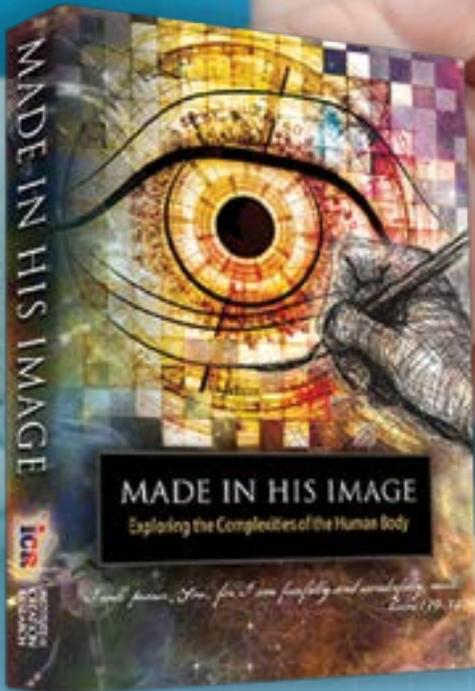
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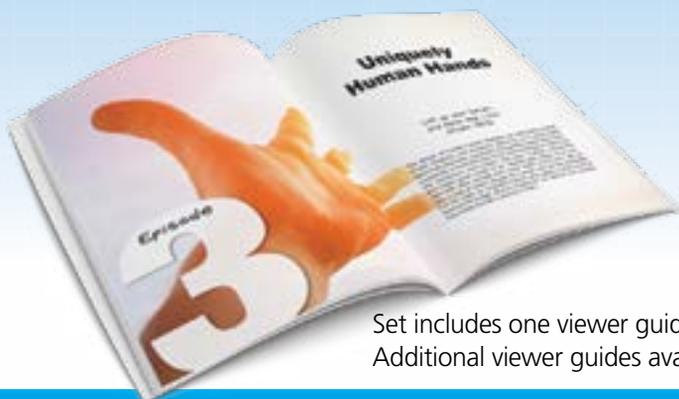
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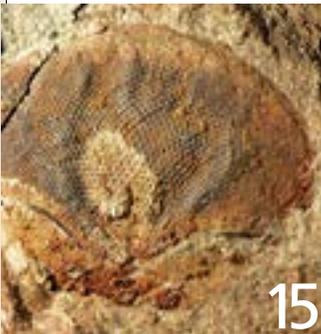
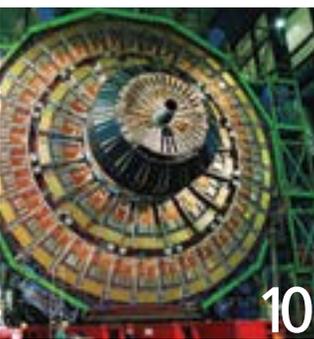
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The Value of Discovery

We are now putting the finishing touches on our upcoming DVD series *Uncovering the Truth about Dinosaurs*, available in November. Part of the filming took place at a remote Wyoming dig site, where scientists and students meticulously brushed away sand from dinosaur fossils and methodically documented their finds. The age range of the explorers was wide, from teenagers to senior citizens. It wasn't easy work. They sat for long hours, sometimes in awkward positions, to get their prizes. By day's end, they were dusty, dirty, and hot. Living conditions at the camp were rather primitive. But they all shared a passion for their work.

What compelled these people to spend their time digging in the dirt? Somewhere, sometime, someone introduced them to the thrill of discovery. From that moment on, they were hooked, and science went from a textbook subject in school to an endless adventure for life.

In the past several months, we have shared details about our plans to build the ICR Discovery Center for Science and Earth History on our Dallas campus. Some of our readers have asked us—why build a discovery center?

The answer lies in the great need we see around us. Many people around the world are confused about how, or whether, science fits with the Bible. We hear countless stories of discouragement from students and adults alike who have been told that you can't believe the Bible if you're serious about science. We want those who visit the ICR Discovery Center to learn how science really confirms what God's Word says about our origins. And we'd like our visitors to catch the passion that comes from discovery.

In this issue, Dr. Henry Morris III provides an update on our plans for the Discovery Center (pages 5-7). We are so grateful for the support we've received from you, our friends and supporters. We appreciate the sacrifice and commitment from those who have partnered with us spiritually and financially, and we invite you to continue praying for us as we plan and build this powerful ministry outreach.

Our particular burden is for the next generation. We see the value in instilling a sense of wonder about God's creation in the minds of the young. The discovery of truth leaves an indelible mark on a child. Won't you consider joining us in reaching a generation of children with the scientific evidence that confirms the Bible? As they learn how science supports creation, many of them will also discover life-changing truths about their God—the Creator of the universe.

Jayme Durant

Jayme Durant
EXECUTIVE EDITOR



Image credit: Jayme Durant

COMPLETE THE DOING

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

It is to your advantage not only to be doing what you began and were desiring to do a year ago; but now you also must complete the doing of it; that as there was a readiness to desire it, so there also may be a completion out of what you have. (2 Corinthians 8:10-11)

Paul encouraged the Corinthian church to complete a fundraising project for the needs of their brethren in Jerusalem. He challenged them with the example of the churches in Macedonia, who not only completed their gift but did so despite an apparent inability to provide as much as they did—because “they were freely willing, imploring us with much urgency that we would receive the gift and the fellowship of the ministering to the saints” (2 Corinthians 8:3-4). The Corinthians made a good start about a year before but for whatever reason failed to complete their project.

Although ICR is not in quite the same place as the Corinthian church, there is a parallel in that all of us need to be reminded to “complete the doing of it” before time becomes a master that overwhelms

the initial excitement of a project and the vision fades. In that light, I thought I might bring our *Acts & Facts* readers up to date. I hope you will rejoice with us and continue to pray as we look for the Lord to bring in the remaining funds needed to begin construction and ultimately complete the ICR Discovery Center for Science and Earth History.

Design Status

All the design plans are completed. Over the past 15 months, ICR has been in constant partnership with the international Beck architectural firm, which is headquartered here in Dallas. It is widely known and respected and has designed some of the more famous monuments and buildings around the world. The ICR Discovery



Center for Science and Earth History will be a stunning building designed to be inviting and attractive—and to last for generations as a premier statement of the beauty and majesty of God’s creation.

The exhibits themselves (the heart of the Center) have been designed by the world-renowned Leisure and Recreation Concepts, Inc. group led by Michael Jenkins. They have designed and produced some 1,100 theme parks and other entertainment venues across the world, including the famous Six Flags parks. Michael’s unique talents in entertainment and education are a perfect fit to make these exhibits beautiful, exciting, and fun—each with a clear biblical message and commitment to biblical accuracy. It may interest you to know that while the numerous exhibits and information access tools will emphasize how science confirms Scripture, there will be a theme to each of the eight exhibit halls centering on Jesus as the Creator, Sovereign Designer, Promise Keeper, Redeemer, etc.

The exhibits will conclude with a life-size hologram of the Lord Jesus’ return (Revelation 19) with the challenge: “He is coming back! What will happen to you when He returns?” This is not a museum for folks to simply come and look at things. We want them to discover and learn the massive amount of evidence that demonstrates the Bible is true in every way that can be tested, and that the message of Scripture is both personal and eternal. Our prayer is that no one leaves our Discovery Center unaffected. Maybe they will be upset or emotionally moved or intellectually stimulated, but not indifferent!

Early Funding

In the five years ICR has been at this, there have been specialized and somewhat quiet efforts to gain funding for property and structural elements that would ultimately be part of this project.

Before we announced last September that we were going to pursue the completion of the Discovery Center, the Lord provided some \$5 million that we spent on the additional adjacent property needed to build the Center. We also contracted several early studies and purchased a few key fossil artifacts that are currently housed in the ICR buildings.

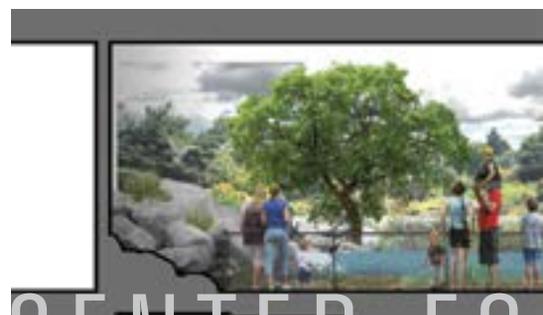
Current Funding

Since announcing the initial surprise gift of \$2 million that gave us the encouragement to begin in earnest to complete the Center, we have received an additional \$5+ million in gifts both large and small, verifying that the Lord’s timing was coming to fruition, and were really encouraged by the response from the regular ICR donors. Of that \$7+ million, we have spent a little over \$2 million on the two major design contracts (building and exhibits), construction analysis, city permits and plat changes, and a host of things that are required to move forward.

An initial piece that must be completed before we actually begin construction is the burial of the utility lines across the frontage of our property. Fortunately, the Lord has provided an “in” with the utility company that has not only saved us nearly one million dollars from the initial estimates, but we are on a priority list that just might have the work finished by the time you read this article. God is good! When all those lines are underground, we can undertake the actual construction of the Center.

Future Funding

One of the axioms of building projects is that they always take



THE ICR DISCOVERY CENTER FO

longer and cost more than expected. We have tried to anticipate the “more,” but as carefully as we plan, it is likely there will be additional items that will pop up in the mix as we move forward. So with that in mind, the remaining minimum of \$21 million dollars is broken down into four major pieces.

■ Construction for the Center, Planetarium, and Landscaping	\$ 15,586,359
■ Construction Cost for the Exhibits	\$ 3,784,325
■ Audio and Visual Equipment	\$ 1,310,000
■ Software and Film Development	\$ 698,548
■ Basic Total for Completion	\$ 21,379,232

ICR has already spent some \$5,184,000 on the project. Thus, the overall cost of the ICR Discovery Center for Science and Earth History will probably exceed the \$26,563,232 that we anticipate.

Of the remaining \$21.4 million, ICR had \$5,046,000 in cash as of late June and received notice of a \$700,000 matching grant that will add another \$1.4 million as the matching completes. Maybe you would want to take advantage of that double your gift opportunity. Members of the ICR family have made commitments to give another \$1,088,000 over the next 12 months.

That leaves \$13,845,232 to be raised over the next 12 to 15 months as the Discovery Center is being constructed and the exhibits and information prepared.

Before We Begin

In order to begin construction on the building, we must sign a financial commitment document with the Beck construction firm. We must raise or gain verifiable commitments of \$9 million before

we can sign that agreement. Once that level is reached, we will begin construction, which will take approximately 13 months.

As noted above, there is an additional \$5,792,873 necessary to complete the exhibit areas, prepare the viability of the large auditorium next to the planetarium, and finish the various audio and visual information materials that must go into the exhibits to make them unique, captivating, and spiritually focused.

Going Forward

Clearly, there is still much to be done. However, the Lord has already provided nearly half of the needs, and the potential donors are most promising. Please pray with us about these remaining funds. Many people have already given, and more are responding every day. But the big gifts must come from those people whom the Lord has given significant wealth. We are in contact with some of them, and others have indicated their interest. Pray that the Lord will open doors to allow us to spend some time with those folks and that they will be disposed to invest in the lives of many yet to come in the generations ahead.

As I mentioned last September, “God’s plans stretch out way beyond our lifetimes. The joy comes with the assurance that you and I will share in the changed lives of those not yet in the Kingdom—even those not yet born!”¹

We will boldly build and complete the doing! ✍

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1. Morris III, H. M. 2015. *Go For It! Acts & Facts*. 44 (9): 7.

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



DISCOVERY CENTER FOR SCIENCE AND EARTH HISTORY

August 2016 Events

- ◆ **August 21, 22, 29 &**
- ◆ **September 12, 19**

UNLOCKING THE MYSTERIES OF GENESIS



Unlocking the Mysteries of Genesis
Series at Denton Bible Church
Denton, TX
940.297.6700



Dinosaur display tours
August 21 & 22



Henry Morris III



Jason Lisle



Brian Thomas



Frank Sherwin

FEATURED TOUR

- ◆ **August 10**
Quakertown, PA
Calvary Chapel Quakertown
(J. Lisle) 215.804.4220
- ◆ **August 11**
Eatontown, NJ
Calvary Chapel Coastlands
(J. Lisle) 732.544.2225
- ◆ **August 13**
Philadelphia, PA
Calvary Chapel of Philadelphia
(J. Lisle) 215.969.1520
- ◆ **August 14**
Exton, PA
Calvary Chapel Chester Springs
(J. Lisle) 610.524.5338

Other Events in August

- ◆ **August 7**
Carrollton, TX
Creation Sunday at Northside Baptist Church
(H. Morris III, J. Lisle, F. Sherwin) 972.242.1582
- ◆ **August 19-20**
Aiea, HI
Calvary Chapel Honolulu Pastors Conference
(Booth Only) 808.524.0844
- ◆ **August 26-27**
Cocoa, FL
Florida Parent-Educators Association S.T.E.M.
Conference (J. Lisle) 312.872.6600
- ◆ **August 28**
Aloma Church
Winter Park, FL
(J. Lisle) 407.671.6851
- ◆ **August 28-29**
Martinsburg, WV
Made in His Image Conference at Independent
Bible Church
(R. Guliuzza) 304.263.5167

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

The Ice Age and the Scattering of Nations

There seems to be a clear explanation for the Ice Age, one that may answer the mystery of post-Flood animal migration.¹ The Bible tells us that after the Flood humans stayed near the Tower of Babel for several generations, disobeying God's command to fill the earth.² Meanwhile, the animals on the Ark had already fulfilled God's command to "abound on the earth, and be fruitful and multiply."³ But just how did the animals, and the large mammals in particular, get to the individual continents after the floodwaters receded?

Land Bridges

The answer seems to be land bridges. Dry land migration routes could have facilitated the movement of large animals from the Ark to remote continents. The Ice Age after the Flood provided just such an opportunity. Water stored in massive ice sheets would have temporarily lowered sea levels by 200 to 280 feet below today's level.^{4,5} The resulting land bridges would have made pathways for animals to simply walk to the major continents.

The timing of the Ice Age was no accident. Michael Oard calculated that the glacial maximum and the simultaneous maximum drop in sea level could have been

achieved within 500 years after the Flood from high ocean temperatures and a late-Flood and post-Flood period of intense volcanic activity.⁶ This timing coincides nicely with the "division" of the earth that occurred during the days of Peleg.⁷

Oard also calculated that the ice causing the Ice Age could rapidly melt away. He estimated that it probably took less than 200 years to completely melt back the continental ice sheets.⁸ Exactly how long the ice sheets endured after their formation is unknown. Once the ice melted, the sea level would have immediately risen, flooding the land bridges and closing this opportunity for intercontinental migration.

Man's Disobedience

After the Flood, mankind remained in the Middle East at "a plain in the land of Shinar," building the Tower of Babel.⁹ This was in direct disobedience to God's post-Flood command to "be fruitful and multiply, and fill the earth."¹⁰ God had to divide and scatter the people by confounding their languages so that they would not miss the temporary land bridge opportunity for migration. God's timing was perfect, since it may have taken several generations for humans to migrate to the Bering Sea land bridge from central Asia.

Conclusion

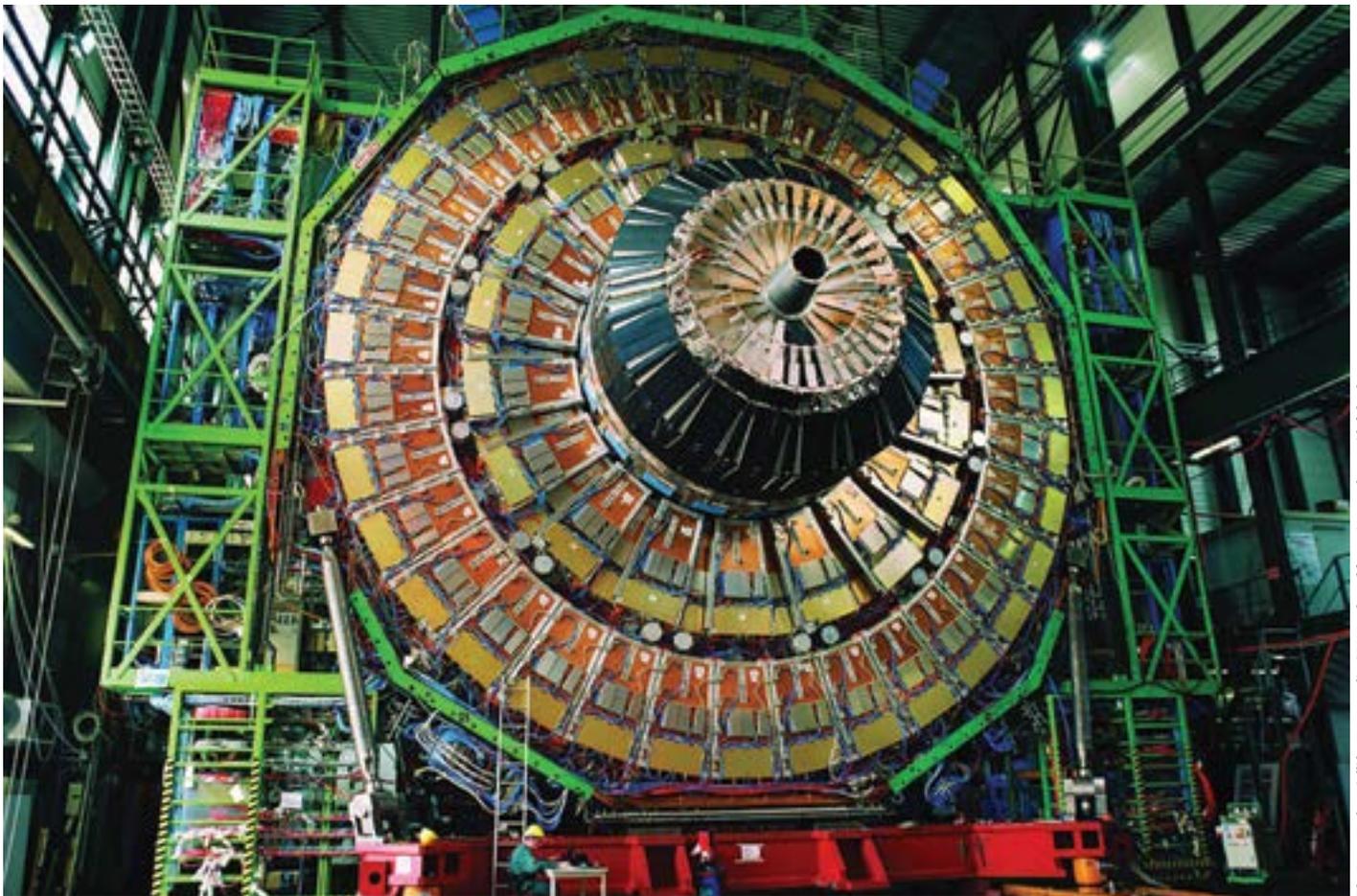
The lowering of sea levels and the creation of land bridges was necessary to provide migration pathways for large animals and humans. Maximum ice volume was achieved at the same time migration pathways were needed to travel from the Ark's landing site to distant continents that are now separated by water. After the oceans had cooled sufficiently and the volcanic activity began to wane, the ice sheets quickly melted and the land bridges disappeared beneath the rising ocean waters, effectively ending the migration. God likely used this narrow window to scatter humans and animals across the globe, effectively repopulating the earth after the Flood's destruction. ☞

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10. Genesis 9:1.

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





The Large Hadron Collider. Image credit: CERN. Adapted for use in accordance with federal copyright (fair use doctrine) law. Usage by ICR does not imply endorsement of copyright holder.

SUBATOMIC PARTICLES, PART 2: BARYONS, THE SUBSTANCE OF THE COSMOS

J A S O N L I S L E , P H . D . , A N D V E R N O N R . C U P P S , P H . D .

In the fifth century B.C., the Greek philosopher Democritus and his mentor Leucippus proposed that all matter is composed of tiny indivisible particles far too small to see. The Greek word meaning indivisible is *atomos*, from which we get the modern term *atom*. Democritus further supposed that the properties of all matter could be determined from the shape and properties of the component atoms. Such insight is remarkable considering the technological limitations of the time.

Today, we know that atoms do indeed comprise all visible mat-

ter and determine the properties of matter. But we now know that atoms are in fact divisible and are therefore not the smallest particle. Atoms are themselves made of protons, neutrons, and electrons. As we study these and other particles, we see that they fall into organized families and that they obey established laws of nature. Laws always imply a lawgiver. Therefore, a better understanding of the families of particles reveals the awesome intelligence of our Creator. Furthermore, the properties of matter continue to frustrate those who reject biblical authority.

Nucleons

In part 1 of this series,¹ we discussed the properties of leptons, the family of “light” particles that includes the electron. Here we examine *baryons*, the family of particles that includes the protons and neutrons found in the nucleus of an atom. Baryons are composite particles, meaning they are made of even smaller particles called *quarks*. Protons and neutrons are classified as *nucleons* because they occur in the nucleus of atoms.

Protons and neutrons are each over 1,800 times heavier than electrons. Protons have a mass of $1.6726219 \times 10^{-27}$ kilograms and an electrical charge of positive 1 (+1). Neutrons are *slightly* heavier than protons, with a mass of $1.67492747 \times 10^{-27}$ kg, and have no net electrical charge. All atoms have at least one proton in the nucleus, and all stable atoms except hydrogen have at least one neutron as well. Consider the helium nucleus, for example. Helium has two protons and (generally) two neutrons comprising its nucleus. But the protons pose a paradox. Each of the two protons has an electric charge of +1 and like charges repel. So what keeps the protons from flying apart?

The fact that protons stick together in the nucleus implies that there must be some attractive force between these particles that is stronger than the electromagnetic force—a nuclear force. We now know that there are in fact *two* types of nuclear force. The force holding protons together is the stronger of these two, so we call it the *strong nuclear force*, or simply the *strong force*.

nothing smaller), like leptons. They have a spin of 1/2, which means they are classified as fermions, just as leptons are. And there are six types (called *flavors*) of quarks, just as there are six flavors of leptons. But there are differences.

Unlike leptons, quarks respond to the strong nuclear force. Also, by convention quarks have a *fractional* electrical charge—either positive 2/3 (+2/3) or negative 1/3 (-1/3), depending on the quark flavor. Quarks are the only known particles with fractional charge. There are also six antiquarks, with identical mass to each flavor of quark but with opposite electrical charge.

Physicists have assigned amusing names to the six flavors of quarks. In order of increasing mass, they are the up quark (represented by the letter u), the down quark (d), the strange quark (s), the charmed quark (c), the bottom quark (b), and the top quark (t). The quarks having a charge of +2/3 are the up, the charmed, and the top. The down, the strange, and the bottom have the -1/3 charge.

Quarks only exist in tight proximity to other quarks; they are never completely isolated. We will explore why this occurs in a later article. This affinity makes them difficult to study directly, but we can study the properties of the particles they comprise. Quarks bind to other quarks due to the strong nuclear force, the same force holding the protons and neutrons together in the nucleus. The up and down quarks are the least massive and are quasi-stable, depending on how they are arranged within the larger particle. The strange quark is slightly heavier and is unstable. The remaining three quarks are “heavy” and unstable; they rapidly decay into other particles.²

Flavor	up	charmed	top
Spin	½	½	½
Charge	+⅔	+⅔	+⅔
Mass (MeV/c ²)	2.3	1275	173,070
Constituent Mass	336	1550	177,000
Force interaction	GEWS	GEWS	GEWS
Flavor	down	strange	bottom
Spin	½	½	½
Charge	-⅓	-⅓	-⅓
Mass (MeV/c ²)	4.8	95	4180
Constituent Mass	340	486	4730
Force interaction	GEWS	GEWS	GEWS

Figure 1. The six flavors of quarks and their properties.

Quarks

Perhaps the best way to understand the properties of protons, neutrons, and other baryons is in terms of their constituent particles—quarks. Figure 1 lists the six types of quarks and their properties. In some ways, quarks are similar to the leptons we covered in the previous article. Quarks are thought to be elementary (made of

Hadrons and Baryons

A *hadron* is defined as a particle that is composed of any combination of quarks or quarks and antiquarks. There are two subcategories of hadrons—mesons and baryons. A *meson* is made of one quark and one antiquark. We will cover these in the next article. Baryons are made of exactly three quarks.^{3,4} The proton and neutron are the lightest baryons, but many other kinds exist as well.

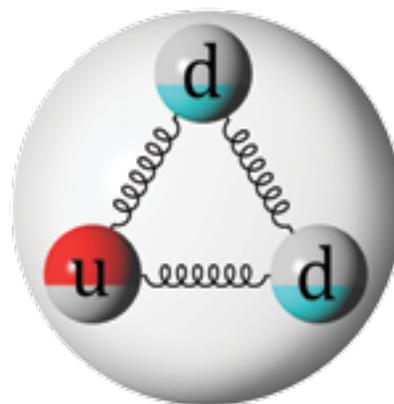


Figure 2. A schematic representation of the internal structure of a neutron.

Protons (represented by the symbol p⁺) are composed of two up quarks and one down quark, written as *uud*. This accounts for the charge of a proton being +1. A neutron (n⁰) is composed of one

Atoms are themselves made of protons, neutrons, and electrons. As we study these and other particles, we see that they fall into organized families and that they obey established laws of nature. Laws always imply a lawgiver.

up quark and two down quarks (udd), which results in its net charge of zero (see Figure 2). This also partially explains why the neutron is slightly heavier than the proton; the down quark is slightly more massive than the up quark, and the neutron has two downs whereas the proton has only one.⁵

Like electrons, quarks all have a spin of 1/2, which can either be in a spin up (+1/2) state or spin down (-1/2) state. And since they only occur in groups of three for all hadrons, the total size of the spin must always sum to a half-integer, either 3/2 or 1/2. Thus, all baryons are fermions, particles with half-integer spins. The proton and neutron each have a spin of size 1/2 since two of the quarks will take opposite spin states.⁶

Particle family	nucleon	lambda (Λ)
Comp / Spin	only u and d quarks, spin 1/2	u/d/s, and one of s, c, or b quark, spin 1/2
Particles in family	2: p^+ and n^0	3: $\Lambda^0, \Lambda^+, \Lambda^c$
Particle	proton (p^+) neutron (n^0)	lambda (Λ^0) ch. lam (Λ^c)
Charge	+1 0	0 +1
Spin	1/2 1/2	1/2 1/2
Mass (MeV/c ²)	938.272 939.565	1115.683 2286.46
Half-life (s)	∞ 611	$1.824e-10$ $1.39e-13$
Particle family	delta (Δ)	sigma (Σ)
Comp / Spin	only u and d quarks, spin 3/2	uu, dd, or ud and one other (s, c, b), spin 1/2 or 3/2
Particles in family	4: $\Delta^+, \Delta^0, \Delta^-, \Delta^{--}$	18 (17 observed)
Particle	delta (Δ^+) delta (Δ^0)	sigma (Σ^+) sigma (Σ^0)
Charge	+2 0	+1 -1
Spin	3/2 3/2	1/2 3/2
Mass (MeV/c ²)	1232 1232	1189.37 1387.2
Half-life (s)	$1.90e-24$ $1.90e-24$	$5.558e-11$ $1.158e-23$
Particle family	xi (Ξ)	omega (Ω)
Comp / Spin	one u or d quark, spin 1/2 or 3/2	s, c, b quarks only, spin 1/2 or 3/2
Particles in family	30 (14 observed)	18 (4 observed)
Particle	xi (Ξ^0) ch. xi (Ξ^c)	bot. om. (Ω_b) omega (Ω^-)
Charge	0 0	-1 -1
Spin	1/2 1/2	1/2 3/2
Mass (MeV/c ²)	1314.86 2470.88	6071 1672.45
Half-life (s)	$2.01e-10$ $7.76e-14$	$78.3e-13$ $5.69e-11$

Figure 3. The six families of baryons. Two examples from each family are illustrated, along with their quark composition and one possible spin state.

The various combinations of quarks lead to a variety of different baryons. As one example, the lambda (Λ^0) is a baryon composed of an up quark, a down quark, and a strange quark.⁷ By adding the charges of the quarks, we can see that the lambda is a neutral particle. It is much like a neutron but with one of the down quarks replaced by the heavier strange quark. As a result, the lambda is more massive

than a neutron. Physicists classify baryons into six families based on the quark content and relative spin state of the quarks. Two examples from each family are listed in Figure 3.

One cannot compute the mass of a baryon simply by adding the masses of its constituent quarks. The energy binding the quarks also manifests as mass. Physicists do not yet understand the precise way in which quarks are organized within baryons, and this makes it impossible to predict from theory their exact mass. Instead, physicists measure the mass of baryons experimentally. However, as a general trend, those baryons composed of the heavier quarks tend to be more massive than those composed of lighter quarks—just as we might expect. For example, the charmed lambda is made of one up quark, one down quark, and one charmed quark; it is heavier than the lambda, which is heavier than the neutron.

The type and mass of baryon depend not only on the composition of quark flavors but also on their arrangement. For example, consider the neutral delta particle (see Figure 3). It is a baryon made of two down quarks and one up quark. It has exactly the same quark composition as a neutron, yet it is more massive than a neutron. This is because all three quarks have the same spin alignment in the delta, producing a higher energy state that results in additional mass. The spin alignment of all three quarks gives rise to the neutral delta's spin of 3/2 rather than the neutron's spin of 1/2.

The Baryon Number Problem

In addition to charge and spin, baryons also have a quantum property called *baryon number*.⁸ All baryons have a baryon number of +1. All quarks have a baryon number of +1/3. Conversely, antibaryons and antiquarks have a baryon number of -1 and -1/3 respectively. This is important because baryon number is a conserved property just like energy, charge, spin, and lepton number. This constrains how baryons can decay and how they can form. The total baryon number before and after any particle interaction must remain unchanged.

This presents an enormous challenge to Big Bang supporters. The energy from extremely energetic particle collisions is sometimes sufficient to produce baryons. However, due to conservation of baryon number, any such collision must produce an equal number of antibaryons. According to the Big Bang model, all the baryons in our universe were produced from the energy of the Big Bang. If that were so, then the number of baryons in

the universe should *exactly* equal the number of antibaryons. But it doesn't. Antibaryons are extremely rare.

God had a good reason for creating the universe with an overabundance of baryons. When antibaryons come into contact with baryons, they destroy each other. So, it is necessary for our existence that antibaryons are rare. And it is no problem for God to create baryons only because He is not limited to natural means. The overabundance of baryons in the cosmos is powerful evidence against the Big Bang model but is amazingly consistent with biblical creation.



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Baryon Decay

The proton is the lightest baryon, and it is stable. All other baryons are unstable in isolation and will spontaneously decay into other particles. It may come as a surprise that even neutrons are unstable in isolation. A neutron has a half-life of about 10.3 minutes.⁹ That may seem short, but it is remarkably long compared to most other particles, whose half-life is microseconds or less. Even so, eventually one of the neutron's down quarks decays into the lighter up quark, releasing an electron and an electron antineutrino in the process (see the previous article in this series). The result is that the neutron decays into a proton.

This decay is possible because all the quantum numbers are conserved (charge, total baryon number, total lepton number, and spin) and energy is conserved. The neutron is heavier (has more energy) than the combination of the proton, the electron, and the electron antineutrino, with the "extra" energy being carried away as motion. We can also see why the isolated proton cannot decay. Conservation of energy forbids the proton from transforming into anything more massive because a more massive particle would have more energy. Hence, it can only transform into a lighter particle. Yet there is no lighter baryon. Lighter non-baryons do exist, but the proton cannot decay into non-baryons because this would violate baryon number conservation. Therefore, the isolated proton cannot decay.

But if neutrons are unstable, why are they often found in the nucleus of atoms long after 10.3 minutes? The binding energy holding nucleons together has a stabilizing effect on neutrons. Such energy affects the total mass of the nucleus, and conservation of energy prevents a lighter nucleus from ever de-

caying into a heavier one.¹⁰

This is why certain isotopes (variations of chemical elements) are unstable and others are stable; stable isotopes generally have the least mass/energy possible without violating any conservation laws. Since we do not fully understand how protons and neutrons are configured in the nucleus, it is not possible to predict the exact mass of the resulting nucleus and thus which isotopes should be stable. However, mass and stability can be estimated approximately.

Since there are six flavors of quarks and three quarks in each baryon, each of which can have one of two spin states, there are several dozen possible baryon combinations.¹¹ Interestingly, the universe is made almost entirely of only two—the proton and neutron. Nevertheless, the Lord upholds the universe in a way that allows for many other particles to exist for short periods of time, giving us greater insight into physics and consequently the mind of God. Particle physics continues to reveal the intricate intellect of God and defies naturalistic expectations. ☞

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2. In general, the greater mass a quark has, the faster it decays. But it makes little sense to discuss the half-life of an individual quark. This is because quarks are never isolated, and their decay rate depends strongly on how they are arranged within the composite particle (the hadron). Top quarks are the exception because they decay before they can form a hadron. The top quark decays in about 5×10^{-25} seconds.
3. These are called *valence quarks*. The number does not include any "virtual" particles—a concept used in quantum field theory to describe interactions between "real" particles—which are beyond the scope of this article.
4. There are quantum physics reasons why quarks only merge in groups of three. We will explore this topic in a later article.
5. That the down quark is heavier than the up quark is a logical inference since if it were not true the proton would be heavier than the neutron due to Coulomb forces (the interactive force between charged bodies) and the proton would be unstable. As far as we can experimentally determine, the proton is stable.
6. This explanation of nucleon spin is greatly simplified. In reality, other factors can contribute to the total angular momentum of a baryon. For example, one or more quarks can exist in an excited state, much as an electron in an atom can jump into a higher orbital. In such situations, the motion of the quark contributes additional angular momentum (but always in integer steps). Also, physicists now believe that quarks are not solely responsible for the overall baryon spin; other transient particles within baryons may also contribute.
7. With the exception of the proton and neutron, baryons are assigned the names of Greek letters and symbolized by the capital letter corresponding to their name and a superscript indicating the electrical charge. For those baryons containing a charmed quark, bottom quark, or top quark, additional subscripts indicate which of these heavy quarks are present.
8. This is a "bookkeeping" number, similar to lepton number. It describes how much "baryon-ness" a particle has.
9. The half-life is the time it takes for half of the original material to decay.
10. As one example of this, consider deuterium, a rare isotope of hydrogen with a nucleus consisting of one proton and one neutron. It has a mass of 2.0141 atomic units. If the neutron were to decay into a proton, then the resulting nucleus would be helium-2, also called a *di-proton*. But the repulsive force between the two protons, though insufficient to overcome the strong nuclear force holding them together, manifests as positive energy and thus as positive mass. For this reason, the di-proton has a mass of 2.0159 atomic units. It is *heavier* than deuterium. Thus, deuterium cannot decay into the heavier di-proton as this would violate conservation of energy. In fact, the reverse happens. Helium-2 is unstable; one of the protons will decay into a neutron, releasing energy via a positron and an electron neutrino.
11. Not all combinations are possible due to the rules of quantum physics. For example, any two quarks of the same flavor within a baryon must have the same spin state (if they are both in the ground state). Also, top quarks are never found in baryons because the half-life of the top quark is too short to form a baryon.

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Modern evolutionary theory has never been without its problems and controversies—even among secular scientists. Famed evolutionist Douglas Futuyma recently stated:

Ever since the Evolutionary Synthesis of the 1930s and 1940s, some biologists have expressed doubt that the Synthetic Theory [the prevailing modern version of evolution, also called neo-Darwinism], based principally on mutation, genetic variation, and natural selection, adequately accounts for macroevolution, or evolution above the species level.¹

In fact, two of the most prominent and vocal skeptics were actually the leading neo-Darwinist evolutionists of their day. Ernst Mayr, an expert on speciation and systematics, and George Gaylord Simpson, a prominent paleontologist, inferred

unable to freely mutate and evolve as once thought. Instead, genes form irreducibly complex hierarchical networks with many other genes and regulatory systems in the cell.

In addition, it now appears that DNA in the genome can be tagged in specific places with special molecules that change gene function but keep the DNA sequence intact—a field of study called *epigenetics*. Epigenetic changes are dynamic and controlled by complicated cellular systems. They enable incredible levels of fine-tuned, environment-specific adjustments within organisms without any DNA sequence modifications whatsoever. Offspring can even inherit many of these epigenetic changes.

In light of these new genomic discoveries, evolutionary scientists are now at odds with one another over how evolution can work at even the most basic genetic level. Approximately 10 years ago, a splinter group of prominent evolutionists broke off and formed a movement called The Third Way or the Extended Evolutionary Synthesis.^{5,6} In regard to classical neo-Darwinism, which is still quite popular in the secular mainstream, they claim neo-Darwinism “ignores much contemporary molecular evidence and invokes a set of unsupported assumptions about the accidental nature of hereditary variation.”⁶ They also state:

The DNA record does not support the assertion that small random mutations are the main source of new and useful variations. We now know that the many different processes of variation involve well regulated cell action on DNA molecules.⁶

So to what does this new breed of daring scientists attribute evolution, given that they also reject the powerful evidence that an omnipotent Divine Engineer is responsible for all this “well regulated cell action”? Well, for the time being, it looks like they are simply claiming ignorance and that they need “a deeper and more complete exploration of all aspects of the evolutionary process.”⁶

The fact of the matter is that no volume of evidence, no matter how overwhelming, will ever be convincing enough if you are dead set in your presupposition that there is no divine source for the unimaginable complexity we observe in all living systems. As the Bible accurately states, “The fool has said in his heart, ‘There is no God’” (Psalm 53:1). ☞

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Evolutionary Crisis and the Third Way

from the fossil record that evolution occurred erratically—large jumps with no transitional fossils—with many creatures not seeming to evolve at all.² For example, many fossils supposedly tens or even hundreds of millions of years old are essentially identical to living versions of the same creatures.³

These glaring contradictions in the fossil record ultimately provided the basis for the subsequent theory of punctuated equilibrium proposed in 1972 by renowned evolutionists Stephen J. Gould and Niles Eldredge.⁴ To accommodate the reality of the fossil record, which lacks the transitional forms needed to prove evolution, punctuated equilibrium suggests that evolution is marked by long periods of stability (stasis or no change) intermittently interrupted by infrequent bursts of rapid change in which a fundamentally new form comes into being. The main problem with this “hopeful monster” idea is that the molecular biology and genomics revolutions that came on the heels of the theory essentially destroyed the genetic foundations of both it and the Synthetic Theory.

If the problems with the fossil record were not bad enough, evolutionists are now faced with the unimaginable complexity found in any living cell and its genome. And not only are useful mutations extremely rare, nearly all genes studied to date are

Two Recent Fossils Confront Gradual Evolution

In Charles Darwin's *On the Origin of Species*, he claimed that "natural selection acts only by taking advantage of slight successive variations; she can never take a sudden leap, but must advance by short and sure though slow steps."¹ Mainstream evolutionary thinkers accept Darwin's premise, but have the 150 years of fossil discoveries since publication of the 4th edition of *Origin* revealed gradual evolution? Two recently found fossils offer a test.

If evolution occurred, textbooks and museums should abound with examples showing fossil A in lower sedimentary layers, fossil B in upper layers (or with still-living counterparts), and many slight, successive variations of fossils between them. Fossils should clearly show evolution from A to B. Why do textbook writers overuse old and long-disproven fossil illustrations of evolution instead of regularly supplying freshly discovered A-to-B transitional fossils? Many fossils don't fit this Darwinian prediction.

In May 2016, researchers described an odd-looking, short-snouted, long-tailed ichthyosaur relative from Anhui Province, China. Ichthyosaurs were roughly dolphin-shaped marine reptiles. Discoverers dug the fossil from Spathian layers, some of the lowest sedimentary layers that have ichthyosaur fossils. Where were the intervening layers that show graded steps between the more familiar long-snouted, short-tailed ichthyosaurs and this new oddball? Nowhere. Both varieties occur almost side by side.

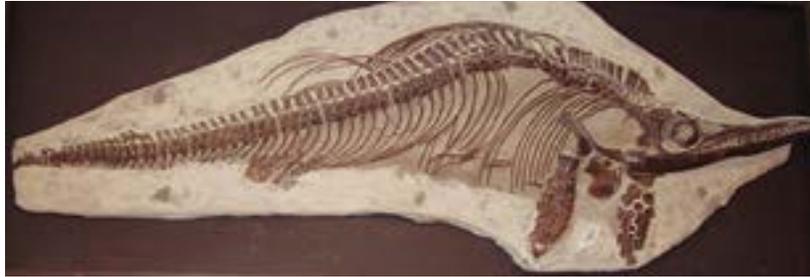
The researchers who described the new fossil said, "Given that the fossil record of Ichthyosauromorpha is unlikely to extend back to the Smithian..., their evolution likely proceeded very rapidly in the early-mid Spathian."² How does "very rapidly" compare with Darwin's "slow steps"?

A 2011 discovery on Kangaroo Island, South Australia, provides another evolutionary misfit. Fossilized compound eyes were found in Cambrian layers. With 8,000 individual segments arranged in tight, hexagonal tubes, these eyes—probably shrimp eyes—from

the lowermost fossil layers look just like today's fully formed arthropod eyes. Where does one find the sedimentary layers with fossils displaying many gradual changes between simpler eyeless ancestral shrimp and more evolved shrimp with fully formed eyes? Nowhere. No succession of slight variations interrupts the already complete arthropod eyes found from the bottom fossil layers to today's ocean creatures.

With no mention of "slow steps" in fossilized arthropod eyes, the research team wrote, "The new fossils reveal that some of the earliest arthropods had already acquired visual systems similar to those of living forms, underscoring the speed and magnitude of the evolutionary innovation that occurred during the Cambrian Explosion."^{3,4} How would the man who asserted that evolution "can never take a sudden leap" have reacted to this "speed and magnitude of the evolutionary innovation"?

These two examples mirror hundreds of others, but any example of a sudden leap refutes Darwin's "slow steps" assertion. Can a different origins model better explain fossil facts? The creature traits that evolutionists suggest evolved so rapidly, God may have created instantly. Or God-given biological systems may have produced trait variations within creature kinds.⁵ Creation explains the abrupt appearance of precise designs in living things, and the Flood explains how creatures got locked in rock layers—frozen as fossils for us to examine. ✍



Ichthyosaur fossil.
Image credit: Naturalis Historia.



Arthropod eye fossil.
Image credit: Government of South Australia.

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MAJOR EVOLUTIONARY BLUNDERS

The “Degenerate” Genetic Code?

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

“**N**ewspeak” was the language developed by the fictional totalitarian regime Oceania in George Orwell’s classic novel *1984*. The regime redefined words and slogans as a means of thought control over its citizens. Often, Newspeak words meant the exact opposite of the “Oldspeak” vocabulary. Citizens’ thinking eventually became characterized by contradictory beliefs that were embraced simultaneously, a practice known as “doublethink.” For instance, the Ministry of Truth produced Newspeak and fabricated history-altering propaganda. And in the Ministry of Love, people were tortured for committing “thoughtcrimes” such as individualism and independent thinking. Orwell’s novel cautions us against being

fooled by cunning misapplication of words or deceptive redefinitions.

Does Degenerate Mean Degraded or Upgraded?

The answer to this question may seem obvious. Obvious, that is, if you think in Oldspeak, but elusive if you think in Evolution-speak. When evolutionists claim that a biological feature is degenerate, do they mean that it is degraded, superfluous, redundant, or a defining characteristic of biological complexity? Apparently, any of these, depending on the evolutionist and the particular conclusions he or she is trying to draw.

A research paper from the 1970s described the genetic code as “a universal,

highly degenerate, three-letter code”¹ For reference, a three-letter code, also called a *codon*, is a group of three bases of DNA that specify a single amino-acid building block for a protein. DNA bases are also referred to as *nucleotides*.

A more recent paper exploring the evolution of genes states, “Because there are much more different codons than coded amino acids, the genetic code is called degenerate. Since the discovery of the genetic code...how it is degenerated is one of the most fascinating problems of genetics.” This fascinating problem has evolutionary implications: “The hypotheses trying to explain the evolution of the genetic code can be divided into two groups [mechanistic and random].”² The authors advocate the

random hypothesis and describe how the alleged evolution and degeneracy of the genetic code developed together.

What might a biology undergraduate student learning about DNA make of these characterizations of genetic degeneracy? Evolutionists believe that genetic variety is mindlessly fractionated between organisms in a deadly struggle for life. Destruction associated with a struggle for life may fit the primary definition of “degenerate” in dictionaries like *Merriam-Webster*:

1 a: having declined or become less specialized (as in nature, character, structure, or function) from an ancestral or former state; b: having sunk to a condition below that which is normal to a type; *especially*: having sunk to a lower and usually corrupt and vicious state; c: degraded.³

The student could, therefore, readily interpret genomic degeneracy according to its common meaning—degradation.

But the student may be pushed to another evolutionary meaning of degenerate. Because there are more codons than coded amino acids, degeneracy might support evolution if some of the codons (or one of the three nucleotides making a codon) were superfluous. This understanding aligns with reports claiming that one in 200 human genes is “nonsense.” A lead researcher stated, “Our study suggests that overall, gene loss has not been a major evolutionary force: our genome does not seem to be in a hurry to get rid of these ‘superfluous’ genes.”⁴ Since living things supposedly evolve through the inefficient survival-of-the-fittest process, degeneracy could result from DNA being “cobbed together”⁵ through “evolution as a ‘tinkerer,’ building new machines from salvaged parts.”⁶ Alleged unessential leftovers junking up the DNA are therefore declared to be evidence of evolution...and certainly not indicators of good design.

As the student gathers yet more background information on the evolution of the genetic code, he may be surprised that in yet another report degeneracy does not mean

superfluous, or functionally redundant, or degraded, but actually “degeneracy is a ubiquitous biological property” that researchers argue “is a feature of *complexity* at genetic, cellular, system, and population levels.”⁷ This novel evolutionary-based usage affirms,

Degeneracy, the ability of elements that are structurally different to perform the same function or yield the same output...is both necessary for, and an inevitable outcome of, natural selection.⁷

It seems that evolutionists can invoke degeneracy to bolster their favored concept.

To find a way through all of the EvolutionSpeak on genomic degeneracy, the student can turn to actual studies of function

A nucleotide order that specifies rapid, repeatable, and useful adjustments to changed conditions does not sound like the serendipitous side effect of random “silent mutations” but rather speaks loudly of the designed outcome of intentional planning.

for the three nucleotides in a codon. These studies point to another major evolutionary blunder since *all* of these possible evolutionary understandings of degeneracy are not supported by the science.

Degeneracy, in EvolutionSpeak, Is Stunningly Wrong

A detailed literature review in 2014 found that even if different codons prescribed the same amino acid in a protein, the codon differences still mattered in how the protein was made. The final folding shape of proteins is vital to their function. David D’Onofrio and David Abel documented that the DNA and its corresponding RNA sequence carried information not only for the proper amino acid sequence but also to control the *timing* of its folding. They “demonstrate that this TP [translational pausing] code is programmed into the supposedly degenerate redundancy of the codon table.”⁸ What this means is that the code of differing codons, even if they specify the same amino acid, still supplies important information,

information that “purposely slows or speeds up the translation-decoding process...Variable translation rates help prescribe functional folding of the nascent protein. Redundancy of the codon to amino acid mapping, therefore, is anything but superfluous or degenerate.”⁸

A recent experiment again shows that the specific nucleotides in a codon do matter. Mutations to a codon that do not change the protein-coding sequence are called *synonymous*. The consensus view was, “Until recently, most biologists believed that so-called silent mutations, created by ‘synonymous’ DNA changes—those that do not affect the protein-coding sequence—had very weak effects on the evolution of organisms.” But this long-term experiment with bacteria found “that single highly beneficial synonymous mutations can allow organisms to rapidly evolve and adapt to their environment.”⁹ Another “interesting phenomenon” was that bacteria with different codons initially, when faced with the same challenges, seemed to converge on the same changes. Researchers found that “furthermore, these mutations occurred at single points within the gene, were highly beneficial, and they seemed to recur in multiple experiments.”⁹

A nucleotide order that specifies rapid, repeatable, and useful adjustments to changed conditions does not sound like the serendipitous side effect of random “silent mutations” but rather speaks loudly of the designed outcome of intentional planning. The genomic code is not degraded or superfluous. It is also clear that structurally different elements that specify a common element *do not* necessarily yield the same output. Observations like these prompted D’Onofrio and Abel to conclude, “The functionality of condonic [*sic*] redundancy denies the ill-advised label of ‘degeneracy.’”¹⁰

Corollaries to the “Degenerate Genome” Blunder

Commenting on wide-ranging rami-

fications of D’Onofrio and Abel’s work, Casey Luskin made an insightful observation regarding how it relates to the conclusions of many other evolutionary studies. He observes,

Seeking to infer the activity of natural selection, evolutionary biologists statistically analyze the frequency of synonymous (thought to be functionally unimportant) and nonsynonymous (thought to be functionally important) codons in a gene....As the thinking goes, if synonymous codons are functionally unimportant, then three conclusions may follow: a bias toward synonymous codons implies purifying selection in the gene, a bias towards nonsynonymous codons implies positive selection, and an equal balance implies neutral evolution (no selection). But if synonymous codons can have important functional meaning, then the whole methodology goes out the window, and hundreds of studies that used these methods to infer “selection” during the supposed “evolution of genes” could be wrong.¹¹

Aside from the science showing that the genome is not “degenerate” in any evolutionary sense, there is another—more important—lesson made evident by this blunder. It pertains to Evolutionspeak within evolutionary literature. This lesson flows from the ambiguous usage of words coupled with novel definitions that essentially oppose their primary meaning. That is conceptually misleading, and it’s possible that this Evolutionspeak could produce the same effect as Newspeak. Orwell was concerned about misleading definitions used by powerful institutions to impose big lies on those under their control. He illustrated this in 1984 with the Party’s oft-repeated mantra “war is peace, ignorance is strength, freedom is slavery.”

In scientific literature, metaphors, analogies, and anthropomorphisms abound. Some are useful in bringing clarity. However, cross-definitions, false analogies, or applying a word to something that its

definition could never support can be misleading. This practice is highly detrimental to science, which is structured on precise language and clarity. We must be on guard to make sure Evolutionspeak doesn’t creep into and warp our own way of thinking about science.

The Genetic Code Is a Design Marvel

As noted above, *repeatability* is found in synonymous changes enabling bacteria to consistently overcome challenges. Repeatability is not a hallmark of chance outcomes but is suggestive that this result is due to designed mechanisms.

It’s possible that this Evolutionspeak could produce the same effect as Newspeak. Orwell was concerned about misleading definitions used by powerful institutions to impose big lies on those under their control.

It is also telling how Gerald Edelman and Joseph Gally recognize that backup, or functionally redundant, systems are indicative of design. However, their worldview not only precludes any consideration of that conclusion but also shapes their choice of vocabulary in conveying their thoughts to others—i.e., Evolutionspeak. They astutely note:

The contrast between degeneracy and redundancy at the structural level is sharpened by comparing design and selection in engineering and evolution, respectively. In engineering systems, logic prevails, and, for fail-safe operation, redundancy is built into design. This is not the case for biological systems. Indeed, not the least of Darwin’s achievements was to lay the argument by design to rest.¹²

Thus, they believe “the term ‘degeneracy’ is more apt than ‘functional redundancy.’”¹²

When humans can identify the true source of fail-safe redundancy, it always is an indicator of good design and a good

designer. Given that, redundancy of a code embedded in another code reveals great design. D’Onofrio explains, “Redundancy in the primary genetic code allows for additional independent codes....We have shown a secondary code superimposed upon the primary codonic prescription of amino acid sequence in proteins.”¹³

Geneticist Dr. Jeffrey Tomkins of the Institute for Creation Research summarizes that “we are only beginning to decipher the true complexity of these different genetic languages,” but we do know that “for the genome to function in all its complexity, many different codes and languages are used, and they all mesh and work interactively with one another....These highly complex language systems speak directly to a Creator of infinite wisdom and capabilities.”¹⁴ How true. For by the Lord Jesus “all things were created that are in heaven and that are on earth, visible and invisible” (Colossians 1:16). ✎

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Q: Did the Euphrates Flow before the Flood?

A: The Bible makes it clear that the Flood destroyed Earth's surface. However, Genesis 2 says that a river named Euphrates flowed *before* the Flood, even though a river with that same name currently flows through Syria and Iraq. Three biblical details resolve this apparent dilemma.

First, the Bible really does teach that the Flood obliterated Earth's surface, and geology agrees. "The waters prevailed fifteen cubits upward, and the mountains were covered. And all flesh died that moved on the earth."¹ Today, small-scale flooding can destroy and rework landscapes. A flood with enough water to cover God's originally created high hills would have pulverized rocks and redeposited debris around the world.

Genesis 7:21 says the Flood destroyed "all flesh." This means that even the birds and pterosaurs eventually found no place to land. The apostle Peter wrote, "The world that then existed perished, being flooded with water."² The whole world "perished"—even its ancient rivers.

Nearly every major package of sedimentary rock layers holds evidence of watery deposition.³ For example, fossils show

rapid burial. Flood currents aligned millions of straight-shelled nautiloids within Arizona's Redwall Limestone⁴ and millions of *Maiasaura* bones in Montana's Two Medicine Formation.⁵

If Scripture and rocks agree that water destroyed the world, how can modern maps show the Genesis 2 Euphrates River? More details show that they're not the same river.

The second detail is found in Genesis 2:10-14, which describes a single water source that parted into four major rivers. Euphrates occurs on modern maps, but Pishon, Gihon, and Hiddekel do not. Tracing today's post-Flood Euphrates River to its sources reveals streams trickling down the Taurus Mountains instead of an immense fountain that supplies three other major rivers.

Tracking down the origins of the name Syria reveals the final helpful detail. Genesis 2 tells of a pre-Flood land translated "Assyria," but it uses the same Hebrew word translated "Asshur" in Genesis 10:22. Shem's son Asshur fathered the ancient Assyrians after the Flood. Shem, one of the eight humans saved on the Ark, knew the original Euphrates River and the pre-Flood Assyria. He likely borrowed the name for his son.

Even today we borrow old names for our sons and daughters.⁶ Bible study reveals other names borrowed from the pre-Flood world, like Havilah and Cush.

These name links suggest a name ancestry: Today's Syria was named after the Assyrians who "carried Israel away captive" in 723 B.C.⁷ Assyria reflected the name of Shem's son Asshur. Finally, Asshur was likely named after the pre-Flood land Asshur.

The Flood destroyed the original Euphrates River along with the rest of Earth's surface features. But in the same way that New York in New England was renamed after York, England,⁸ someone long ago must have named today's Euphrates River after the pre-Flood river of the same name. ✉

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3. Layers long interpreted as wind-blown deposits, like the Coconino Sandstone, have cross-bed angles that match those of underwater sand dunes. See Thomas, B. 2014. Do Sand-Dune Sandstones Disprove Noah's Flood? *Acts & Facts*, 43 (9): 18.
4. Austin, S. A. 1990. Were Grand Canyon Limestones Deposited by Calm and Placid Seas? *Acts & Facts*, 19 (12).
5. Horner, J. R. and J. Gorman. 1988. *Digging Dinosaurs*. New York: Workman Publishing, 129.
6. Noah was in the top 10 popular boy names among the millions of BabyCenter users in 2015. Most Popular Baby Names of 2015. BabyCenter fact sheet. Posted on babycenter.com, accessed May 19, 2016.
7. 2 Kings 18:9-11.
8. Scripture even describes such a renaming event in Judges 1:22-26.

Mr. Thomas is Science Writer at the Institute for Creation Research.

When It Rained Chocolate Kindness

Imagine a German child who survived World War II's destruction only to be deprived of decent food, clothing, and shelter. Then, like lightning breaking through a nightmare of darkness, the sky began to rain chocolate!

Berlin was devastated by the wartime bombings. Yet, as hopeful reconstruction began, Cold War trouble arrived. Soviet Russia blockaded West Berlin, choking off avenues for food and fuel from the West—a siege strategy to starve it into surrendering. Canals, railroads, roadways, and electricity were obstructed by Russian troops. Over two million West Berliners were trapped and had little more than one month's food and less than two months' coal.¹

The Berlin Blockade—June 1948 through May 1949—prevented trucks from delivering food and heating coal. Would America and Great Britain be forced to abandon West Berlin to Russia's bullying tactics? Would Stalin annex free West Berlin to the Soviet-bloc empire?²

No, the siege was broken by the Berlin Airlift. In U.S.-run Operation Vittles and British-run Operation Plainfare, this relief effort was powered by military cargo planes, Anglo-American goodwill, and a clear warning—that Moscow would receive an atomic bomb reprisal if any American cargo plane was shot down by Russia.

British and American planes made serial deliveries—day after day after day—of cheese, coal, coffee, fish, flour, gasoline, meats, medicines, cereal, whole milk, powdered milk, dehydrated potatoes, sugar, wheat, yeast—with a goal of delivering 1,500 tons of food daily!³

Lt. Gail Halvorsen, an airlift pilot, decided to film cargo planes on the runway on one of his days off. About 30 German children approached, curiously crowding a wire fence that separated them from the airlift operations. To be kind, Halvorsen handed his only two sticks of Doublemint chewing

gum through the fence.² The children divided the gum into small pieces. Those who got no gum sniffed the gum wrappers. What a pitiful scene!

Halvorsen wished he had more to share. Another plane landed and he had a brainstorm.

Why not drop some gum, even chocolate, to these kids out of our airplanes the next daylight trip to Berlin?²

He announced his intention to the children. But how would they know which

because it happens so frequently that we take it for granted.³

Nevertheless He did not leave Himself without witness, in that He did good, gave us rain from heaven and fruitful seasons, filling our hearts with food and gladness.⁴

Without rain or snowmelt, how would our rivers and streams, lakes and ponds be refilled? Without rain, where would we get fresh drinkable water, without which we would die? God has not left Himself with-



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aircraft he would be flying? “When I get overhead, I’ll wiggle my wings,” Lt. Halvorsen told the kids, gesturing with his arms.²

So, thanks to the kind creativity of “Uncle Wiggly Wings,” Operation Little Vittles was launched, airdropping tons of Hershey’s chocolate bars, Life Savers, bubble gum, and more using handkerchief-like parachutes. News of the raining chocolate went viral among Berlin’s children and their parents. Eventually, Russia’s siege was lifted, thwarted by nonstop deliveries of airborne kindness.

How wonderful! Yet, we can all imagine kindness being rained down upon us—

out witness. Even the rainwater and the entire water cycle that providentially make life possible are proof positive that God is kind. His kindness literally rains down on us from the skies. ✨

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1. Berlin Airlift Historical Foundation. Posted on spiritoffreedom.org. Tunnell, M. O. 2010. *Candy Bomber: The Story of the Berlin Airlift's "Chocolate Pilot."* Watertown, MA: Charlesbridge, 1-11.
2. Tunnell, *Candy Bomber*, 12-73, quote on 22.
3. Regarding Earth's water cycle, see Job 26:8, 36:27-28; Isaiah 55:10-11; Deuteronomy 8:7, 32:2; Ecclesiastes 1:7, 11:3; Amos 5:8, 9:6; Psalm 104:10-13; Jeremiah 10:13, 14:22, 51:16; Zechariah 10:1; Luke 12:54.
4. Acts 14:17.

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



Videoconference with ISS Commander



Image credit: NASA.

Col. Williams posted on Facebook on May 8: “This Lord’s Day morning I read a familiar, yet always humbling passage from chapter 26 of the Book of Job—I would encourage anyone to read the whole but here is an excerpt. . . [God] hangs the earth on nothing. He binds up the waters in His thick clouds.”

Col. Williams reminded our staff that each of us is called to a purpose, and we are to do our best to fulfill it before the Lord. The purpose is not just for ourselves—it’s bigger than that—and his prayer is that we would all be faithful to our calling.

When asked about the most beautiful thing he’s seen from space, Col. Williams replied that sunrises and sunsets are at the top of the list. He has taken hundreds of thousands of pictures from space of the wonders of God’s Earth, some of which he shares in his book, *The Work of His Hands* (available at ICR.org/store).

Dr. Jake Hebert wrapped the time up by thanking Col. Williams for his bold Christian witness. What a blessing to see the witness of God’s people—whether orbiting the earth or with feet firmly planted on the ground. ✂

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

On June 17, 2016, Col. Timothy Kopra turned over command of the International Space Station (ISS) to Col. Jeff Williams as Expedition 47 ended and 48 began. After completing 186 days in space, Expedition 47 crew members returned home. NASA astronaut Col. Williams and cosmonauts Oleg Skripochka and Alexey Ovchinin continued station operations, with three new crew members scheduled to join them in early July.

Col. Williams is allowed periodic face-time with family and friends. During the transition time, he graciously offered a videoconference to the Institute for Creation Research staff while his wife, Anna-Marie, listened in from Houston. His responses gave us a unique look into his heart.

ICR’s Chas Morse acted as host for the 30-minute interchange, and Dr. Henry Morris III kicked things off by reminding Col. Williams that the ICR family continually prays for him and his crew. Dr. Jason Lisle then asked Col. Williams if there is any experiment he finds particularly interesting. He responded that the most intriguing are the studies on the effects of radiation and weightlessness on the human body. Earth’s environment has to be duplicated in the ISS, which gives Col. Williams a great appreciation for God’s handiwork—especially since human attempts to replicate it have been imperfect.

Eric Bowyer asked, “What has God taught you while you’ve been in space?” Col. Williams said he has a deeper admiration for God’s providence. He sees how God has worked throughout his life, eventually preparing him to be where he is now as an astronaut. He also sees God’s providence in the little things. Particularly special is the provision He has given Col. Williams and Anna-Marie to endure their time apart, not once, but during three long space flights.

Science writer Brian Thomas asked Col. Williams how we can be praying for him. His requests were threefold: 1) continued provision for him and his crew to execute the mission safely and effectively, 2) for peace and safety for his family back on Earth, and 3) that he and all of us at ICR would diligently remain within our God-given purposes in life.



ICR staff prepares to videoconference with the ISS.

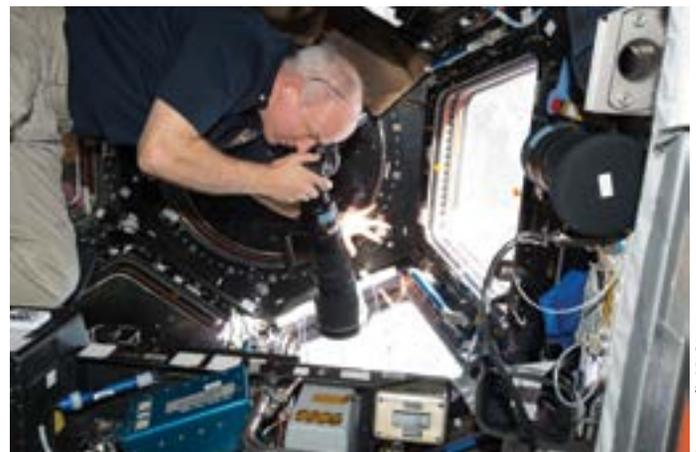


Image credit: NASA.

Col. Jeff Williams conducts Earth observations from the cupola on the ISS.

Faith vs. Trust

Many believers today often confuse having *faith* in God with *trusting* in God. Faith is a noun. It is something you have or possess, a “substance” or “evidence” of things both hoped for and not seen (Hebrews 11:1). Faith in God is the confident belief that He is the sovereign Creator of all things and that He can and will do what He claims. Trust, on the other hand, is a verb. It is something you do or act upon. Faith always comes first, but trust is never guaranteed. It is a willful choice, a deliberate action, and can only grow out of your faith.

There is a vast difference between faith and trust, and the story of Charles Blondin and Harry Colcord provides a great illustration. Blondin was the foremost tightrope walker of his time. He gained worldwide fame in 1859 as the first person to cross Niagara Falls. Colcord was his friend and manager. A cable made entirely of hemp, 1,300 feet long and two inches in diameter, was wound around an oak tree on the American side, while the other end was ferried across the Niagara River and secured to a Canadian rock. To limit swaying, Colcord had stabilizing guy ropes affixed at 20-foot intervals to anchors on both banks—except for 50 unreachable feet in the center, which sagged and swayed dangerously. Thanks to Colcord’s savvy marketing, tens of thousands of spectators gathered for the spectacle. Gamblers took bets on whether Blondin would fall and die, and vendors hawked everything from lemonade to liquor.

Shortly before 5:00 p.m. on June 30, 1859, Blondin started his slow walk from the American side. Once past the center section, he broke into a run! After a brief rest, he started back again, but this time toting a box camera on his back. Balancing precariously near the middle, Blondin carefully set up the camera and snapped a picture of the crowd. Then he repacked his burden and continued the rest of the way. The entire round trip took 23 minutes. Once safely back

on American soil, Blondin immediately announced a series of encore performances, each more daring than the last. The press ate it up.

Over several weeks, Blondin walked backward, blindfolded, backflipped, pushed a wheelbarrow, and even cooked an omelet during one of many trips across the rope. He had faith he could accomplish these feats, but he also trusted his abilities to complete them. The spectators, on the other hand, only had faith—a difference seen in Blondin’s daring walk in August 1859. After he had crossed to the Canadian side, the crowd was horrified as Blondin reappeared on the rope with his manager, Harry Colcord, clinging to his back. A few guy ropes snapped during their transit, but Blondin never wavered and safely made the crossing. It was later reported that Blondin told his manager, “Look up, Harry...you are no longer Colcord, you are Blondin. Until I clear this place be a part of me, mind, body, and soul. If I sway, sway with me. Do not attempt to do any balancing yourself.”¹

This is the difference between faith and trust. The spectators had faith in Blondin and believed in his abilities. But only Colcord trusted him enough to climb on his back and allow him to carry him across. Is your trust in the Lord like that? Do you truly trust Him to provide and care for you and supply all your needs (Matthew 6:25; 1 Peter 5:7; Philippians 4:19)? Or do you place your trust in your personal resources and efforts, or in other people or things you think you control? Without the “trust in the LORD” of Proverbs 3:5, you will never know the joy and confidence of Proverbs 3:6: “In all your ways acknowledge Him, and He shall direct your paths.”

Reference

1. Abbott, K. The Daredevil of Niagara Falls. *Smithsonian Magazine*. Published on smithsonianmag.com October 18, 2011, accessed June 17, 2016.

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



“Trust in the LORD with all your heart, and lean not on your own understanding.” (Proverbs 3:5)

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I absolutely loved the biography about Dr. Morris in *Acts & Facts* ["ICR Founder Henry M. Morris: A Son's Tribute," June 2016] and how dedicated he was to Scripture! I am looking forward to the book coming out soon!

— M. P.

Comment on henrymorris3.com

It was 1971 when a friend of mine told my unbelieving heart about science and biblical truth being the same. A year later, after many other witnesses, I got saved in Denver and came to grips with the 24-hour/seven-day creation as my early friend witnessed to me. The literal truth of Genesis 1 is a major fundamental doctrine. I have friends and family who say, "What difference does it make?" and I shudder how a believer can take so lightly any Scripture, let alone the first chapter of Holy Scripture.

— M. S.

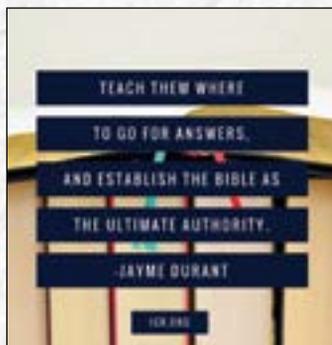
A friend posted a lovely excerpt from one of your [*Days of Praise*] devotionals today. It reminded me that I used to subscribe to your material and zealously devoured your research. As a blogger and devoted Christian, I have often used points gleaned from your work and have become more interested in evolutionary and creation science over the years because of it. When we moved, I cancelled my subscription. However, my friend's post reminded me that you all have blessed me in the past and do the work so few people have the courage to do. So I've made a small donation to say thank you for all you do. And I've re-subscribed to your publications and look forward to receiving them. God Bless.

— K. A. D.

A response to Jayme Durant's meme

If it wasn't for ICR, I would have been [an] atheist. The sad thing is that many people don't know about ICR and become atheists. This institute is the best one, and when I grow up I hope I can work with your amazing organization.

— W. M. T.



Thank you for all the hard work you do, especially with the museum [the ICR Discovery Center for Science and Earth History]. The world needs a place they can go to hear and see the truth—a place that acknowledges God, not time, as the Creator of all things. I look forward to the museum's opening.

— J. P.

Just a note to tell you how much I enjoy your [*Days of Praise*] daily devotional and *Acts & Facts* magazine. Your magazine is very informative and a much-needed resource. I am 80 years old and can now only support you with my prayers. I know it is expensive and time-consuming to produce the material. If you can no longer send me *Days of Praise* and *Acts & Facts* due to the expense, I will completely understand.

— A. S.

Editor's note: While it's true we are a nonprofit ministry and rely on donations, our mission is to equip the saints by proclaiming the truth in creation. You seem discouraged that you "can now only support" us with your prayers. We covet your prayers! The Lord has always been faithful to provide for us, and we will continue to send you our resources!



f ICR Facebook comments about June Acts & Facts

I love how Dr. Guliuzza uses both his medical and engineering training [in "The Fatal Flaws of Living Fossils"] to show how mind-bogglingly complex God's creation is! The lack of appreciation for complexities such as the chemical reactions involved in moving a muscle make belief in the religion of evolution an easily swallowed opiate for many people.

— C. L.



The article "The Evidence Rats Out Bat Evolution" was absolutely fascinating! I've always had a fascination with bats ever since I was a boy. We used to stand under our streetlight on sultry Carolina dusks waiting for the little brown bats to show up. They would twist and dive and make astounding maneuvers to catch the insects fluttering around that light. Sometimes we would throw small rocks up in the air to see if they would chase them. They would react to them in a short turn but quickly turn away as I reckon they realized that wasn't the moth they were after!

— B. G.

As a junior high science teacher in a Christian school, I can't wait for the opening of this Discovery Center! Especially since we have family in the Dallas/Ft. Worth area that we would love to bring to visit with us!

— G. R. W. R.

Have a comment? Email us at editor@icr.org or write to Editor, P. O. Box 59029, Dallas, Texas 75229. Note: Unfortunately, ICR is not able to respond to all correspondence.

Two New Books by Dr. Henry M. Morris III!

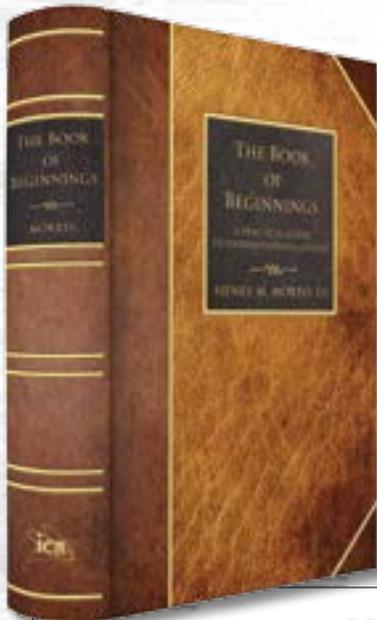


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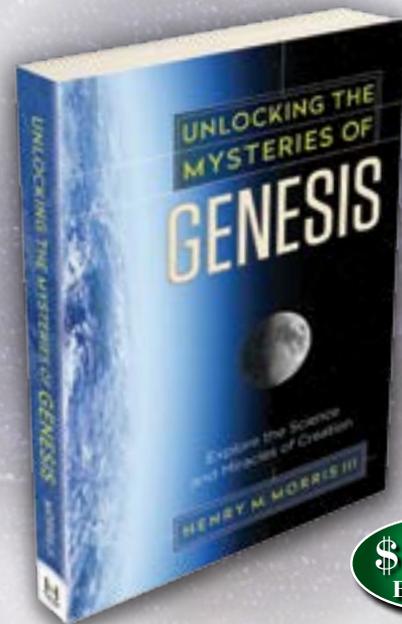


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