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TASC

TASC's mission is to rebuild and strengthen the foundation of the Christian faith by increasing awareness of the scientific evidence supporting the literal Biblical account of creation and refuting evolution.

Dan Reynolds, PhD, Chairman
Fred L Johnson, PhD, Newsletter Editor

May 2011

A REVIEW AND RESPONSE TO THE BOOK *THE GRAND DESIGN* BY STEPHEN HAWKING

By Dan W Reynolds

Stephen Hawking is Professor of mathematics at Cambridge University where he held the *Lucasian Chair* at Cambridge for 30 years. He is author of the best-selling book *A Brief History of Time*. Hawking suffers from ALS. His most recent book, *The Grand Design*, was published in 2010 by Bantam Books.

In *The Grand Design* Hawking attempts to show meta-physical naturalism is supported by science. He claims the fine tuning of physics in our universe is not hard to explain because there are at least 100^{500} universes, according to some theories, each with its own unique set of physical laws and constants—we just happen to be living in one of the few universes with the right laws and constants that allow us to exist. The book develops this argument by retracing the history of physics. Attempts to marry quantum mechanics with relativity have led to theories that imply the universe created itself, says Hawking.

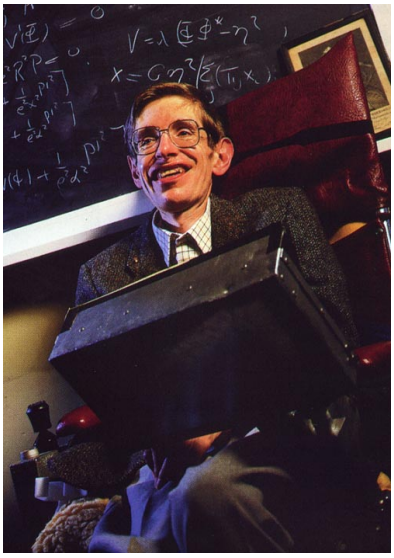
Chapter 1: The Mystery of Being

Hawking attempts to deal with key questions: Where did everything come from and how did we get here? Hawking claims philosophy is dead—that it has not kept up with science. Scientists are now the truth tellers/seekers in our culture. Ironically, much of *The Grand Design* is philosophical in content.

In classical (Newtonian) physics, objects have well defined positions, velocities, trajectories and histories. This view is correct at large scales but does not apply at the atomic scale. quantum mechanics explains how particles behave at the atomic scale. Quantum mechanics is a very successful theory and has been thoroughly tested. Many experimental results, while consistent with the theory, defy common experience (see below) and have led to several interpretations concerning the implications for the nature of reality.

One interpretation put forward by physicist Richard Feynman holds that particles don't have unique histories but every possible history. Some say this principle applies to the universe as well.

Hawking adopts what he calls Model Dependent Realism in which reality is not just defined by observation but models as well. If two models explain something equally well, one model can't be said to be more real than the other. Hawking implies that Model Independent Realism is either non-existent or unobtainable.



Stephen Hawking

According to Hawking, M-Theory is currently the only candidate for a theory of everything. M-Theory is not a single theory but a family of theories that overlap. Where the different theories overlap, they agree. For Hawking, M-Theory says there are multiple universes that arise from physical law.

Hawking poses additional fundamental questions: How does the universe behave and why? Why is there something rather than nothing? Why do we exist? Why does our universe have its particular set of physical laws?

Chapter 2: The Rule of Law

Hawking observes that ancient cultures invoked deities to explain nature, but now we know nature operates by physical law. Observation is the basis of science. Initial conditions and laws allow us to understand a system. Hawking asks: (1) What is the source of physical laws? (2) Are there any exceptions to the laws (miracles)? (3) Is there only one possible set of laws?

Hawking says answering #1 with "God" only exchanges one mystery for another. For Hawking, there are no miracles (#2); the history and future of the universe can

be explained from known laws and the state of the universe at some point in time. This is the view of scientific determinism held today (naturalism).

An extension of this view is that we don't have free will since our behavior is merely an outworking of chemistry and physics. However, according to Hawking, we are so complex that our behavior is impossible to predict.

Hawkins questions the existence of a reality independent of an observer.

Chapter 3: What is Reality?

Since (according to Hawking) there is no picture- or theory-independent concept of reality, Hawking advocates model-dependent realism (vs. model-independent realism). Observers affect what is observed. According to Hawking, we can't know ultimate truth (via science) but only if a model is consistent with observations. Hawking says we see things subjectively. In model-dependent realism one can't say one model is more real than another if they explain the data equally well. A good model agrees with observations, makes testable predictions, and is as simple as possible (Occam's razor).

Hubble's interpretation of galactic redshifts was that the universe is expanding. The behavior of particles and light in various experiments has lead to the wave/particle duality interpretation, that is, particles sometimes behave like solid objects and at other times as if they were waves. According to Hawking, the laws of nature are like this: there is no single mathematical model that is adequate to explain everything but a network of theories, called M-Theory. M-Theory consists of the electroweak theory, quantum chromodynamics, relativity, and quantum mechanics, among others.

Double Slit Experiment[1]

Scientists have conducted what is known as the "double slit experiment" with light, electrons, and even molecules. In the experiment, a particle is shot towards a target. Between the target and the particle source is a barrier with two slits. In our classical physical minds, we expect to see an image of two lines on the target, each resulting from particles passing through the two slits and then striking the target. But this is not what is observed. What are seen instead are regularly spaced light and dark patches consistent with wave interference patterns. The particles behave like waves. If particles are shot at the target one at a time with the double slit barrier, the same pattern eventually emerges. The implication is that each particle, behaving like a wave, goes through both slits! If one tries to observe the path of the particles by using a light based detection device, the particles form the pattern expected for particles: two lines and no interference pattern. The results of these experiments have lead to many interpretations of quantum mechanics.

One interpretation of quantum mechanics is called "alternative histories" or "many worlds". This theory says that the universe does not have a unique existence or history; every possible version exists simultaneously in a quantum superposition. There are other interpretations.[2] Quantum mechanics has passed every experimental test so far. Like so many theories, however, one must always distinguish between fact and interpretation of fact.

Chapter 4: Alternative Histories

Bucky Balls[3] in a double slit experiment give the same interference pattern as electrons and photons—this is a great mystery. In quantum mechanics, the past, present, and future of a particle can't be known exactly, in contrast to classical physics and everyday experience. This is not a contradiction: which physics applies depends on the scale, particles versus composite. Science is still working to understand how Newton's laws emerge from quantum mechanics. The Double Slit Experiment works with electrons, photons, and Bucky Balls—it works with even one photon at a time—an interference pattern is always obtained.

Interpretations of Quantum Mechanics

As stated before, there are several interpretations of quantum mechanics.[2] The Copenhagen Interpretation says that measurement causes the wave function of a particle to collapse to a single value, i.e., the measurement samples one of the many possible states).

The Many Worlds interpretation says there is no wave function collapse but that each possibility is realized in another universe (or world). The act of observing selects which outcome and history comes to pass in our universe without destroying the other possible outcomes which are realized in other universes.

The Ensemble Interpretation says the wave function applies to an ensemble of particles or systems but not to individual particles or systems (Einstein). Hence the idea of a single system or particle having many states simultaneously is avoided. There are several other interpretations.

[1] Online video: < http://www.youtube.com/watch?v=DfPeprQ7oGc> Accessed 2011 Apr 11

[2] Interpretations of quantum mechanics <http://en.wikipedia.org/wiki/Interpretations_of_quantum_mechanics> Accessed 2011 Apr 11

[3] Bucky Balls are particles consisting of 60 carbon atoms.

The Uncertainty Principle says that one can't know both the position and momentum of a particle at the same time. quantum mechanics does not dictate a specific future outcome (of a particle) but allows for multiple eventualities, each with a probability. Past and future become a matter of probability, not certainty. According to quantum mechanics, every particle has a probability of being found anywhere in the universe.

In the double slit experiment, the interference pattern is due to constructive/destructive interference of waves. Particles behave like waves in the double slit experiment. A given particle takes every path possible simultaneously (this is one interpretation).

Richard Feynman's "sum over histories" uses different math and gives a different picture than classic quantum mechanics but makes the same predictions. If a slit is open, the particle takes a path through it. In Feynman's view, particles sample every path from A to B, collecting a phase (represents a position of the cycle of a wave). Adding all the waves of all the paths gives probability amplitude that the particle, starting at A, will reach B. For large objects the probabilities align, making the path predicted by Newton extremely likely.

The probability of an observation is constructed from all possible histories that could lead to that observation – this method is called the "sum over histories" formulation of quantum physics. Observing a system must alter its course—a photon will interact with a particle and change its speed, direction, etc. Once observed, particles are found to only go through one slit or the other, but no longer both. This is called the "which path" information. Shining the light makes the interference pattern disappear. quantum mechanics tells us that the unobserved past or future is indefinite and only exists as a series of possibilities. The universe, according to quantum mechanics, has no single past or history.

Shining a light on a particle after it has passed through a slit and near its target destroys the interference pattern. According to Hawking, observing the universe affects its past and determines different histories.

Chapter 5: Theory of Everything

According to Hawking, the universe is comprehensible because it is governed by scientific laws. Science discovered gravity, electrical and magnetic forces, and then that electrical and magnetic forces were related. Electromagnetic fields propagate though space like a wave.

According to Special Relativity, for an object traveling from point A to point B, the distance traveled and the time elapsed depends on the frame of reference. Time on a clock appears to move faster to an observer at rest with respect to the clock than an observer in motion. Time, mass, and space are not absolute; this has been verified by experiment. Time and space are intertwined. General Relativity deals with gravity. Newton's law of gravity had to be modified to accommodate the relative nature of time. Einstein assumed space-time was not flat but curved by the mass and energy in it. In relativity, gravity is not a force but the result of space curvature. Relativity predicts gravity waves and black holes.

Maxwell's theory of electromagnetism and relativity are examples of classic theories where the universe has only one unique history. Hawking says we need quantum versions of all physical theories—he calls them quantum field theories:

1. Gravity: weakest force
2. Electromagnetism: responsible for chemistry (QED, quantum electrodynamics)
3. Weak Nuclear Force: causes radioactivity, plays a role in the formation of elements in stars
4. Strong Force: holds protons, atom together (QCD, quantum chromodynamics)

Bosons are force-carrying particles between matter-particles. In QED, photons are the boson .

The weak force and electromagnetism were combined into one theory. The combined theory has made many accurate predictions, including the existence of new subatomic particles.

The Strong Force (QCD) gets stronger with distance, acts like rubber bands. It holds quarks in the proton together. For quarks, only combinations with no net color (a property of quarks not related to color we experience) can exist as free particles. Quarks have not been observed directly in nature or experiment.

Grand Unified Theories (GUTS) attempt to unify QED and QCD. They predict the lifetime of protons is 10^{32} years, but this has not supported by experiment; no evidence protons decay. Hawking says this result casts doubt on GUTS.

The Standard Model of physics includes QED and QCD but not gravity; it treats QED and QCD separately.

Formulating a Quantum Theory of Gravity is a problem because of the Heisenberg Uncertainty principle: the value of a field and its rate of change can't be simultaneously known. The more you know one, the less you know the other. Space can't be empty since then both would be zero. The minimum energy is called the vacuum energy and is subject to fluctuations—particles and fields quivering in and out of existence. Virtual particles

pop in and out of existence. There is indirect evidence for this (small changes in energy levels of electron orbits). Virtual particles have energy; there are an infinite number, so space-time should have infinite curvature, but this is not true. There are too many infinities in equations leading to results that don't make sense. One possible solution is super gravity with super symmetry. This required that every mass particle had to be associated with a force particle. These ideas had the potential of removing the infinities, but the math was too difficult. However, experiments have been proposed to detect the predicted partner particles. The Large Hadron Collider may be able to reach the energies required to see some of these partners. Partners are 1000x more massive than the proton. However, none have been seen so far.

String Theory, an attempt to combine relativity with quantum mechanics, says there are vibrating one dimensional strings that determine particles and forces. It needs 10 dimensions, 6 of which are curled up and not observed (straw analogy). String theory has 5 different theories plus super symmetry—all presumably part of the same theory; each applies in certain situations.

M-Theory is an extension of string theory: a network of overlapping theories. Where the theories overlap, they agree. We don't know if it will emerge as a unified theory or remain a network. Hawking says this may be the closest we can come to a final theory. M-Theory has 11 space/time dimensions. M-Theory says there are strings, point particles, membranes, 3D blobs, and other objects (p-branes, p = number of dimensions) that have more than three dimensions. The dimensions can only be curled up in certain ways. The shape of space determines the values of physical constants (laws of nature: four forces, mass of particles, etc). Thus M-Theory allows for different universes having different physical laws determined by how the internal space is curled. By this approach, there are 100^{500} possible internal spaces/types of universes.

According to Hawking: "The original hope of physicists to produce a single theory explaining the apparent laws of our universe as the unique possible consequence of a view simple assumptions may have to be abandoned."

Chapter 6: Choosing Our Universe

Edwin Hubble discovered the universe is expanding (galactic redshifts, balloon analogy) implying the universe had a beginning. Friedman's solution of relativity seemed to fit Hubble's observations (expanding universe). Einstein thought the universe should be static even though relativity predicted that the universe should be expanding or contracting. Hence he introduced a "fudge factor" (now called the cosmological constant) into his equations to make the universe static. However, Hubble's observations showed that the original prediction of expansion was correct. The cosmic microwave background radiation (CMB) was the first evidence for the "Big Bang". The CMB had been predicted by Big Bang theorists. The abundance of elements observed in the universe added support (hydrogen, deterium, helium), but lithium is still a problem. Hawking does not mention this.

According to theory, the universe started as a Singularity (infinite mass, no volume). However, relativity can't deal with a singularity—too many infinities; it can only deal with the universe after time begins. The universe appears to be very smooth with respect to temperature and the distribution of matter-energy. The Big Bang can't account for this homogeneity. Inflation theory says the universe went from the size of a coin to 10^7 times the size of the Milky Way in a moment very early on after the Big Bang. Space can expand faster than the speed of light (c). The idea of inflation came from quantum theory. The details are still not clear since we still don't have a quantum theory of gravity. The inflation would not be completely uniform which might account for variations seem in the CMB. Inflation helps explain homogeneity—how the universe reached thermal equilibrium prior to expansion. For inflation to work, the universe had to be setup in a very improbable way. Quantum theory applies to the early universe because of scale. Hawking says we know that the origin of the universe was a quantum event. Space-time is curved according to relativity.

What of the beginning of time? Hawking says this issue is similar to the edge of the world. Explorers found there was no edge. Hawking says that at extreme curvature of space-time, time just becomes another spatial dimension, so time does not have a beginning; it just changes form. Hawking makes an analogy of the beginning of time being like the south pole of a globe. It is impossible to be more south than that; expansion of universe is represented by a band of latitude. Asking what happened before the universe is like asking what is south of the South Pole. All histories are pictured as closed surfaces (globe) without boundaries; this is called the no boundary condition. Application of "sum over histories" to the entire universe means to add every possible history of the universe to get to where we are today (assuming the no boundary condition). The universe appeared spontaneously starting off in every possible way—most of these correspond to other universes (multiverse theory) which are different from ours (boiling pot analogy). Histories with complete uniformity have the greatest probability. There are many universes with histories with slight irregularities; our universe is one of these. Irregularities allow for formation of galaxies and stars.

There are two approaches to cosmology: bottom-up versus top-down. The bottom-up approach starts with a defined state of the universe and then unfolds it applying physical laws; this assumes a single history. The top-down approach starts with the current state of universe and determines the most probable histories looking backwards. In the top-down approach, we create history by our observations instead of our history creating us. This implies that the universe does not have an observer-independent history. The laws of nature depend on the history of the universe.

In M-Theory, 7 dimensions in our universe are curled up. Why? As long as this is possible, says Hawking, the "why question" does not matter since all possibilities are realized in some universe. In M-Theory, the shape of space-time (the "internal space") determines physical law. Using the "bottom-up" approach, there is no apparent reason to expect a universe like ours where the standard model applies. However, using the top down approach, we assume all universes are possible, ours being one that has a non-zero probability. Hawking says the laws of nature in our universe are not required by logic or physical principle. In other words, our universe looks the way it does because it was a possibility and all possible universes occur.

Chapter 7: The Apparent Miracle

Hawking reviews some evidence of "fine tuning" of physics in our universe. For example, we don't have a binary star (most stars are binary), the eccentricity of earth's orbit is near zero (close to a circle), the sun's mass and our distance from it put us in the "habitable zone" (not too hot or cold), the sun emits the right spectrum of light for life as we know it, and our temperature allows liquid water. Hawking says our existence determines what our environment will look like since only a few environments will support our existence (weak anthropic principle). The Strong Anthropic Principle puts constraints on our environment and the laws of nature. The fundamental forces had to be able to create elements in stars, make stable elements, and allow for star/galaxy/solar system formation. Forces had to allow for the expansion rate of the universe.

Carbon is formed in stars by the "triple alpha" reaction ($2He \longrightarrow Be$, $Be + He \longrightarrow C$). If the strong force was different by 0.5% or the electric force by 4%, carbon and oxygen would not exist. If the weak force was a little weaker, all hydrogen in the early universe would have become helium, if much stronger, supernovas would not spread the heavier elements. If protons were 0.2% heavier, they would decay into neutrons, thereby destabilizing atoms. If the sum of the masses of the quarks that make up the proton changed by 10%, there would be few stable elements. It appears that the summed quark mass is optimized to allow for the largest number of stable elements.

The number of spatial dimensions determines the nature of gravity. Stable elliptical orbits are only possible with three large space dimensions. With more than three large spatial dimensions, electrical forces would vary such that electrons would either escape from or spiral into the nucleus. In 3D space, gravity varies by $1/r^2$. For a 4D space, gravity would vary with $1/r^3$, in which case stars would fall apart or collapse into a black hole. Hawking observes:

> The emergence of the complex structures capable of supporting intelligent observers seems to be very fragile. The laws of nature form a system that is extremely fine-tuned, and very little in physical law can be altered without destroying the possibility of the development of life as we know it. Were it not for a series of startling coincidences in the precise details of physical law, it seems, humans and similar life forms would never have come into being.

Hawking says that the apparent fine tuning of our universe is not the result of intelligent design since our universe is only one of many possible universes, each with different laws.

Hawking continues:

> But just as Darwin and Wallace explained how the apparently miraculous design of living forms could appear without intervention by a supreme being, the multiverse concept can explain the fine-tuning of physical law without the need for a benevolent creator who made the universe for our benefit.

Hawking says just as we now know our solar system is not unique, so now science says the same about our universe.

Maxwell and Einstein gave us a theory to explain light, electricity, and magnetism. In the 1970s, the standard model of physics emerged dealing with the weak and strong nuclear forces. Now string theory and M-Theory attempt to merge gravity with the standard model.

Chapter 8: The Grand Design

Hawking poses some Questions:

1. Why is there something rather than nothing?

2. Why do we exist?

3. Why is there this particular set of laws and not some other?

Hawking asks if God created the universe, then who created God. Since no one knows (says Hawking), the origin question is still not solved.

Hawking says there is no model-independent version of reality we can know. Hawking says a well constructed model creates a reality all its own.

Hawking says that the energy of empty space is constant and independent of time and position. The constant value of energy of empty space is said to be zero. The energy of an object surrounded by empty space is positive. This makes space stable and prevents things from popping into existence with positive energy (motion) and negative energy (mass). Work has to be done to generate an object. Gravitational energy is negative. Mass and motion are positive. Our universe can appear out of nothing because the positive energy (mass and motion) and negative energy (gravitational potential energy) cancel each other out on a large enough scale. According to Hawking, spontaneous creation is the reason there is something rather than nothing.

M-Theory is the best super symmetric theory of gravity, the only candidate for a theory of the universe. The theory is yet to be confirmed by observation.

Hawking says, "Because there is a law like gravity, the universe can and will create itself from nothing."

Comments on Hawking's View

There are problems with Hawking's view. First, there is no evidence for other universes or that they can form spontaneously due to gravity. This may work in some theoretical model, but without evidence, it is mere speculation. Hawking does not tell us where gravity comes from or what makes reality able to generate a multiverse. Hawking says the universe is comprehensible because it is controlled by natural law, but he fails to explain the origin of natural law. Hawking admits our universe is extremely fine tuned for our existence but then appeals to the Anthropic principle—in my view a philosophical cop-out. Empirically our universe is all we know of, so the problem of fine tuning remains. Hawking asks what created God. Of course, the God of the bible had no beginning so the question does not apply. Hawking claims that our act of observing the universe determines its history without providing any more proof than the double-slit experiment. How does he know that the many worlds interpretation of quantum mechanics is correct? There are many others. Hawking assumes Darwinism has answered all the questions in evolutionary biology, but this simply is not so. Macroevolution is still looking for a credible mechanism; so far, the only known source of complex specified information such as found in books and DNA is an intelligent agent. Even if the many worlds interpretation is correct (this is dubious in my view), the origin of information in biology would still need to be explained. Just as the "just so" stories of evolution have failed to explain the diversity of life on earth, the "just so" many worlds hypothesis fails to explain the origin of the universe or natural law. The amount of lithium detected in the universe is different from Big Bang predictions.[4] So far there is no mechanism to start and stop inflation. There is evidence in the CMB for a comic axis (so called "axis of evil"); if confirmed, this would contradict the no boundary assumption and require some revision of inflation theory. So far there is no evidence for microscopic black holes and curled up extra dimensions predicted by M-Theory and related theories.[5] There is still no complete explanation for why there is no anti-matter in the universe. M-Theory, string theory, and related theories have not been confirmed, so perhaps it is premature to say everything has been explained without God. Hawking's explanation for the universe is more philosophy than science. The best answer is found in Genesis 1:1—In the beginning God created the heaven and the earth. Indeed, God's Word contains an eye witness account of the creation making model-independent realism (objective truth) feasible. After all, the best science depends on reliable observation.

LETTERS TO THE EDITOR

T. rex unfossilized tissue

You have an article on your website (http://www.tasc-creationscience.org/content/dinosaur-bones-whole-lot-twistin-goin) that states: "As can be seen from the photos in Figure 1, the tissue from this T-Rex are clearly unfossilized and flexible." However, the photos in Figure 1 are of samples from fossil bones that have subsequently been demineralised, so of course they appear unfossilized—the mineral content (whether it be from fossilisation or ossification) has been removed. Also, as flexibility of materials can not be determined from a static photo, this is not at all clear.

Later, the author says "According to Smithsonian magazine, Dr. Schweitzer feels that some Christians, presumably young-earth creationists, "treat you really bad" and "twist your words" and "manipulate your

[4] Dorminey B (2011) Where has all the lithium gone? *Astronomy*, February:44-49

[5] European Organization for Nuclear Research (CERN) (2010 Dec 15) Search for microscopic black hole signatures at the Large Hadron Collider <http://cms.web.cern.ch/cms/News/2010/MicroBlackHoleSignatures15122010/index.html> Accessed 2011 Apr 11

data." I am very sorry that she feels this way and I will do my best not to twist her words or data in this article."

The author's best isn't very good, in this case. While the difference seems minor, it's the accumulation of small incremental changes like this, misrepresenting what the samples are that are pictured, that can eventually lead to outrageous claims being made. **– Madeleine Ware**

Author response: It is true that the subject sentence does not, and probably should, reiterate that the tissues in the subject photos were originally encased in a bony matrix. However, a reader would have to ignore the rest of the article to not understand that the tissue in question was found within fossil bone. The whole point of the article is that Dr. Schweitzer and other scientists have discovered soft tissue within dinosaur bones. The first paragraph states that scientists have discovered that "dinosaur bones can retain their soft tissue." The second paragraph points out that "conventional wisdom at the time was that rock-hard fossils tens of millions of years old do not retain soft tissue." Further, in that same sentence, Dr. Thomas Holtz Jr. is quoted as saying that paleontologists "don't go to all this effort to dig this stuff out of the ground to then destroy it in acid [to test for soft tissue]."

In any case, the fact that Dr. Schweitzer and colleagues used a chelating agent (EDTA) to dissolve the bone matrix and test for soft tissue does not change the issue. The point is that the stretchy, pliable stuff found inside the bone, that was in the shape of blood vessels, etc., was regarded by Schweitzer, and others, as remarkably preserved soft tissue that had not been replaced by minerals. Dr. Schweitzer herself has said that "preservation of this extent, where you still have this flexibility and transparency, has never been seen in a dinosaur before."

The Schweitzer et al. (2005) article in which the photos appear also states that the tissue demonstrated "great elasticity and resilience upon manipulation." Thus, while I agree that static pictures are not conclusive proof that the tissues they tested were elastic, I believe Dr. Schweitzer's team included these photos in their paper in order to make it clearer to the reader why they felt that they were. Hence, I do feel that photos can add clarity in this area and, with respect to the reader's final point, I'd be surprised if Dr. Schweitzer would contend that they were used to represent something they were not intended to represent. **– Jeffrey Gift, PhD**

Answers in Genesis and BioLogos

Regarding the article, "Sola Scriptura: Our Standard for Theology" in the April 2011 newsletter:

This is a timely topic because this past week, on Tuesday, March 22, 2011, Ken Ham [of Answers in Genesis] was kicked out of the Great Homeschool Conventions conferences for statements he made concerning Dr. Peter Enns of BioLogos fame. Mr. Ham made comments to the effect that "you should be aware that Dr. Enns makes it clear that sin should not be discussed with young children because it will cause problems with their view of God. He also doesn't believe in a literal Adam and literal Fall."

As noted on the AIG website, "It is sad that a speaker and ministry, which stand boldly and uncompromisingly on the authority of God's Word, are eliminated from a homeschool convention. Yet speakers and exhibitors who obviously undermine the authority of God's Word are welcomed." **– David Earnest**

COMING EVENTS

Hear AiG's Dr. Tommy Mitchell in Durham, North Carolina, on May 1–2

Dr. Tommy Mitchell, a dynamic lecturer, will be in Durham, North Carolina, at Grey Stone Baptist Church on Sunday and Monday, May 1–2, 2011. Admission will be free.

Sunday, May 01, 2011

10:00 AM Why Genesis Matters

11:15 AM Why Genesis Matters

5:00 PM Why Can't a Day Mean a Day?

6:30 PM Noah's Ark and the Global Flood

Monday, May 02, 2011

6:00 PM Are You Intimidated?

7:30 PM Jurassic Prank: A Dinosaur Tale

The event will be held at the following location:

Grey Stone Baptist Church
2601 Hillsborough Road
Durham, NC 27705United States

For more information, visit:
http://www.answersingenesis.org/outreach/event/6998/
or call 919-286-2281.

Answers in Genesis
2800 Bullittsburg Church Road
Petersburg, KY 41080

Thursday, May 12, 7:00 P.M., Providence Baptist Church, 6339 Glenwood Ave., Raleigh, Room 631
Dan Reynolds, PhD, will present Current Scientific Discoveries that Support Creation.

Contributions can be made at the TASC web site at www.tasc-creationscience.org through any of these major credit cards or through PayPal.

Or mail your contribution to: TASC, P.O. Box 12051, Research Triangle Park, NC 27709-2051