Creation Matters

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In this issue:

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Creation Research Society
6801 N. Highway 89
Chino Valley, AZ 86323

Math Matters

by

Don DeYoung, PhD

…when the moon hits your eye…

The moon is slowly receding outward from the earth due to tidal interaction. This lunar recession amounts to about 1.5 inches per year (3.8 cm). The rate was much larger in the past, and leads to a fundamental problem with geologic time (DeYoung, 2008).

As a mathematical exercise, imagine that the moon suddenly stopped in its orbital path. Gravity attraction would then cause the moon to fall directly inward toward the earth. How much time would pass before the catastrophic collision? This is not a trivial problem, because the gravitation force increases as the moon accelerates toward earth. The solution involves a differential equation which must be expanded with no exact solution.

Dimensional analysis provides a quick estimate, giving the collision time $t = (r^3/GM)^{1/2}$. Here r is the initial earth-moon separation, G is the universal gravitational constant, and M is the earth's mass. The result gives a moon-earth collision time of about 4.4 days, within 10 percent of the detailed calculus derivation.

Incidentally, the similar time for a static earth falling directly into the sun is about 58 days. Thankfully, the orbital speeds of the moon and earth maintain a stable dynamic system for our survival and well being.

Reference

DeYoung, D. 2008. Tides and the creation worldview. *Creation Research Society Quarterly* 45(2):100–108.

Cover photo adapted from "2003-09-17 Goose bumps.jpg" (© Ildar Sagdejev /Wikimedia Commons/CC-BY-SA-3.0).

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Editor:
Glen W. Wolfrom

Assistant Editors:
Jean K. Lightner
Robert Hill

For advertising rates and information for authors:

Glen W. Wolfrom, Editor
Creation Research Society
6801 N. Highway 89
Chino Valley, AZ 86323-9186

Email: CMeditor@creationresearch.org
Phone: 928.636.1153

Creation Research Society Website:
www.creationresearch.org

Encouraged—Educated—Equipped—Embraced—Excited: Confessions of a CRS Student Future Leader

Editor's note: The author is a CRS Student Future Leader and a graduate student at a major university.

On July 28–30, I had the privilege of attending the 2016 Creation Research Society Conference on the campus of Concordia University in Ann Arbor, Michigan. As a grateful member of CRS's Future Leaders program, I would like to share with you a student's perspective of the conference and its impact on me.

I am 24 years old and a Ph.D. candidate in the earth sciences. Since entering undergrad, my stated goal and passion has been to complete my doctorate and perform creation research. But, admittedly, it can be hard working on a Ph.D. at a secular school, as I am sure many of you reading this can relate to. It is easy to lose focus, to become frustrated with not being understood, to be shocked and grieved by the spiritual deception, and to wonder if gaining ground is possible.

That is why the CRS Future Leaders program is so incredible. I imagine it as being created by those of you who know exactly where I am coming from and what you (and now I) needed at that stage of life. Attending the CRS conference was an incredible experience as I was encouraged, educated, equipped, embraced, and excited.

At the CRS conference, above all, I was encouraged. Probably my favorite speaker was Jake Hebert—in his two talks, he tore key uniformitarian arguments apart with precision and enthusiasm. Having observed these arguments routinely taken for granted in my field, I was encouraged to see examples of careful, honest detective work exposing false assumptions in seemingly indestructible pillars.

Dr. Steve Austin delivered the Henry M. Morris Memorial Lecture

I was educated in many ways at the conference, one of which was Tim Clarey's plenary session. Hearing him share about three years of careful exploration of megasequences across North America and Africa gave me a clearer understanding of foundations for the ecological zonation model and the explanatory power of Flood geology.

Throughout the conference, I was also equipped. For example, in another of my favorite talks, Jason Lisle skillfully clarified the presuppositional differences between young and old earth positions, described a powerful apologetic approach to refuting all old earth arguments, and reviewed many of the key scientific processes that give evidence of the failure of uniformitarian reasoning.

Although I could mention many more stimulating scientific presentations I attended, what was perhaps the most needed and received part of my conference experience was being embraced by the creation science community. Outside of the talks, I interacted with passionate scientific experts devoted to searching for and exposing truth who were also eager to see young scientists grow into their ranks.

In the end, I left the conference with mixed emotions, but ultimately excited. I still felt somewhat discouraged about having to return to a scholastic setting limited by an a priori rejection of a Creator. Yet, many elements of my conference experience chased away my discouragement, like hearing Steve Austin, in the Henry M. Morris memorial lecture, describe the enduring legacy of creationists and the role we all can play in showing the world creation science. Thus I was reminded of what God is accomplishing through the work of scientists and others dedicated to revealing His hand in creation. This work still is my passion.

I have no idea how my scientific career will unfold—right now, I am just trying to put a dent into my thesis. But by being encouraged, educated, equipped, embraced, and excited at the CRS conference, I left powerfully re-affirmed in both my creationist convictions and what I want to devote my life to. So to my fellow student Future Leaders and CRS members, I assure you that you do not want to miss out next year. And be sure that you do not let any students you know, who would benefit from the Future Leaders program, miss out either. They will be, like I am, profoundly grateful.

CM

Conference attendees listened intently to Dr. Tim Clarey's plenary presentation.

Are Goose Bumps Evolutionary Leftovers?

by Jerry Bergman, PhD

A common claim used as evidence for the evolution of humans is the existence of goose bumps (see cover photo), a feature which is anatomically termed "piloerection." An example of this claim can be found in an article by Professor Richard Dawkins, who wrote that

> Even we naked apes still have the machinery to raise non-existent (or barely existent) hairs, and we call it goose bumps. The hair-erection machinery is a vestige, a non-functional relic of something that did a useful job in our long-dead ancestors. Vestigial hairs are among the many instances of history written all over us. They contain persuasive evidence that evolution has occurred, and again it comes not from fossils but from modern animals (Dawkins, 2009, p. 340).

Another example is an article published in *New Scientist* that covered five "useless relics of our evolutionary past." Number two on the list was goose bumps which, it is claimed, "are widely considered to be vestigial in humans" (Spinney, 2008). This vestigial-organ claim is putative evidence for dysteleology, the assumption that as many as 100 organs and structures were useful for one purpose in the past, but now serve a different, less important function in the body, or no function (Wiedersheim, 1895).

Charles Darwin investigated goose bumps by attempting to frighten animals in the monkey house at the zoo with a stuffed snake (Darwin, 1871, p. 42–43). He was one of the first persons to argue that goose bumps and body hair itself are a vestige of humanity's ancient past (Darwin, 1871, pp. 148–149).

Science writer Michael Woods wrote in the 1970s that some sources, including the *Encyclopedia Britannica,* claimed that there are over 100 vestigial organs and structures in humans, but "today, goose bumps stand almost alone" as an example of a vestigial organ. Woods concluded that arguments as to why goose bumps are useless are only "science's story for now, anyway. Is it true, or just vestiges of ignorance and arrogance left over from the past?" (Woods, 2002). Researchers have now documented that goose bumps are well designed, complex structures that have several important functions (Poblet, et al., 2002).

Functions of goose bumps

Piloerection is an automatic response to stimuli that range from emotional upset to a cool breeze or cold temperatures. One purpose of piloerection in most mammals is to help protect against heat loss by producing increased insulation against the cold, trapping large quantities of air near the skin's surface (Kaufmann, 1982).

The claim that the goosebump system in humans is the remant of a system still used by animals to fluff up their hair to improve its insulating properties has been around since Darwin (Harris, 1982). Because according to some evolutionists, humans are naked apes, they argue that the small amount of hair remaining on humans can no longer serve this function.

The problem with this claim is that we are not in fact naked apes. Humans have about the same amount of body hair as apes, only human hair is much thinner and shorter. Furthermore, the thickness and shape of body hair vary enormously in humans. Some ethnic groups, such as Scandinavians, have very little *obvious* body hair, because it is light in color, and both thin and short. Others, such as some Italian and other Mediterranean people, have thick, long, dark, very obvious body hair.

Body hair is also a major secondary sexual trait, one of many traits which have an important role in male sexual attraction (Landau, 1989, p. 103–105; Liggette, 1974, p. 97; Cooper, 1971. p. 17–20). Some evidence also shows that the arrector pili muscle is part of a complex system that helps to maintain the general health of the integument. Dysfunction or disease of this muscle can contribute to hair loss and other health problems (Torkamani, et al., 2014). For this reason, piloerection can serve as an overall indicator of a number of health problems (Warren, 2002). It can also help a person "communicate" with his or her own body, as illustrated by the expression "chills rushed down my body" (Joseph, 2013, pp. 4, 36–37).

The insulation claim

Air is one of the best heat insulators known. Darwinists claim that when

> …cold, our mammalian relatives fluff out their fur to increase the insulation of their bodies; we get goose pimples or duck bumps under the same conditions, but the attempt is abortive, for even though the muscles for fluffing the hair are present, the hair itself has virtually no insulating capacity (Merrell, 1962, p. 101).

This analogy broke down when researchers discovered that muscle contractions producing goose bumps serve several important functions in humans. One is to help warm the body in low temperature conditions. C*ontraction* by these muscles yields significant amounts of heat due to the enormously large numbers of these small muscles. The arrector pili consists of small, smooth "muscle that connects the hair follicle to the connective tissue of the basement membrane" (Torkamani, 2014). If the heat they produce is insufficient, the next level of heat production is triggered, namely a greater level of body muscle tension that causes shivering, which produces even more heat.

Another role of piloerection is to function as an oil pump. Specifically, contraction of the arrector pili muscles squeeze the sebaceous glands, forcing the oil they contain into the hair follicle, and then onto the skin's surface. The epidermis consists of dead cells which require the steady supply of oil to serve their dermis protection role. The muscle-hair system also helps prevent the oil glands from becoming clogged.

The oil helps to protect human skin from cold burn by reducing the dry skin that is a common problem in cold climates. Cold air dries the skin, causing chapping and cracking if the condition is prolonged and, in response to the cold, piloerection pumps oils onto the skin to help protect it from the cold's many negative effects. As Marieb and Hoehn write, the "more important role of the arrector pili in humans is that its contractions force sebum out of hair follicles to the skin surface where it acts as a skin lubricant." (2013, p. 159)

The oil also serves a minor insulation function. The system is important in warm weather to cool the body by helping to insure that the body's perspiration is evenly distributed instead of in droplets that either evaporate slowly or fall off the body. One reason men have more body hair than women is because men have a higher metabolic rate; thus, on average most men perspire more than most women.

Piloerection in humans also serves as an important means of communicating emotions, including fear and rage. This fact has resulted in the development of a goosebump sensor which was designed to measure quantitatively the degree of human emotion as expressed by goose bumps (KAIST, 2015). This is indicated by the fact that the strongest goosebump response in humans occurs on the often-visible forearms, and far less on the legs and back. The appearance of the raised hairs on the arms is both very noticeable to the victim, and effectively conveys a message to others.

Many body parts lack hair, including the palms of the hand, the bottoms of the feet, the lips, and certain other parts of the face, and thus lack piloerection. If heat retention was its only function, piloerection would be expected to exist on the *entire* body, especially those parts that are critical areas of heat loss, such as the face. Anthropologist Nina Jablonski wrote that "our skin often 'thinks' before we do. It can react to a stimulus, leaving us with goose bumps … even before we can identify the cause" (Jablonski, 2006, p. 112).

Conclusions

These facts argue against the view that human body hairs are vestiges of a system that was once used in our putative evolutionary past to improve body insulation. The big question is, if we have lost most of our body hair as evolutionists propose, why did we? Long, thick body hair clearly serves an important heat-trapping function in animals; thus natural selection would predict its retention at least in seasonal and especially cold climates. The evidence supports the conclusion that goose bumps are part of a complex, functional system in humans. The claims of Darwinists appear to be without foundation.

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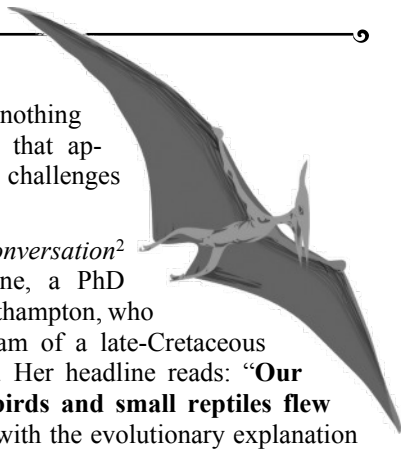
Speaking of Science

from the Creation-Evolution Headlines

by David F. Coppedge

Editor's note: These S.O.S. (Speaking of Science) items have been selected from "Creation-Evolution Headlines" by David F. Coppedge at http://crev.info and are used by permission. Unless otherwise noted, emphasis is added in all quotes.



Birds and Pterosaurs Flew Together

Does it make evolutionary sense to find birds flying with pterosaurs?

Patagonia has yielded a new medium-sized pterosaur fossil with a wingspan of 1.5 meters, reports *Live Science*.[1] Evolutionists are dating it between 175 and 200 million years old, in the middle Jurassic. Because its skull was preserved along with an intact brain case, paleontologists think it might yield information about brain evolution in pterosaurs. That brain must have been pretty sophisticated, though. Stephanie Pappas writes,

> Pterosaurs had a **suite of adaptations that made them strong fliers.** Their bones were feather-light, and they sported air sacs extending from their lungs to keep their body density down and their air exchange efficient, a 2009 study found.

Surprisingly, Pappas said nothing about another pterosaur story that appeared on the same day that challenges evolutionary thought.

That part is told on *The Conversation*[2] by Elizabeth Martin-Silverstone, a PhD student at the University of Southampton, who worked with the discovery team of a late-Cretaceous pterosaur in British Columbia. Her headline reads: "**Our new pterosaur fossil shows birds and small reptiles flew side by side.**" She takes issue with the evolutionary explanation of why small pterosaurs have generally not been found from the period. According to the old story, small pterosaurs disappeared "because they were **out-competed by early birds** who **forced them to evolve into much bigger animals.**" Finding a relatively small one will force some revisions to the story (she shows her pterosaur reconstruction to be about the size of a cat).

But this mature pterosaur shows that small pterosaurs were living side-by-side with birds, coexisting, not competing.

> Palaeontologists have had **a big debate** about what happened to pterosaurs during this time because few small fossils have been found. Older studies typically found no link between the decline of pterosaurs and the rise of birds, but recent

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Matters of Fact

by

Jean K. Lightner, DVM, MS

The Nature of Directed Mutations

Editor's note: You may submit your question to Dr. Jean Lightner at jean@creationresearch.org. It will not be possible to provide an answer for each question, but she will choose those which have a broad appeal and lend themselves to relatively short answers.

Q If directed mutations are responsible for much of the post-Flood speciation that has occurred, why haven't directed mutations produced a new "kind" as well?

A The design of creatures and the changes brought about by mutation are simply not compatible with changing one kind of creature into another.

Why is it confusing?

Evolution is a broad term which has been used to describe changes ranging from the average beak size in a population of finches over time to the idea that all life on earth has a common ancestor. This ambiguity in the term is intentionally used to try to promote the philosophical belief that all life on earth came about from a common ancestor by naturalistic processes. When we see animal populations change over time today, we are told it demonstrates that, given enough time, "simple" life forms, such as bacteria, can change into "more complex" life forms. In other words, if any change occurs, then one kind of creature must be able to change into another, too.

While superficially the argument may seem appealing, it is profoundly flawed. Change itself is not the same as transforming into something fundamentally different. Change in average beak size within a population of birds does not explain where the beak came from, or why its design allows for variation. Clearly, although these animals can vary, the changes we can observe do not support a naturalistic origin of finches, or their beaks.

Life: designed to change

Biologists don't really ever define life; rather, they describe it. One characteristic of life is that it is responsive to the environment. Such changes are necessary to maintain homeostasis, an equilibrium that allows for life to continue (Detwiler et al., 2014). Changes in temperature, humidity, light levels, oxygen levels, etc., are detected by the organism, and it responds. Many of these changes in response to the environment involve changes in gene expression. This is known as physiologic adaptation. Yet despite the fact that the changes can be dramatic, the organisms are not transforming into different kinds.

Some types of adaptation to extreme environments, such as to high altitude where the oxygen level is low, involve a succession of physiologic changes for adaptation within the lifetime of the organism. Developmental changes in the next generation extend the adaptation; some biologists refer to this ability as phenotypic plasticity. Eventually, genetic changes can be involved when populations persist at high altitude (Lightner, 2014). All of these events involve changes in an organism, but none involve changing an organism from one kind of creature into another.

Mutations require pre-existing complexity

Scientists have examined the underlying molecular basis for changes in size and shape of finch beaks. Increases or decreases in the expression of several different genes, in a specific region, during a specific window of time, can alter beak shape. In fact, the details show amazing design, as there are options where two of the three dimensions can vary in tandem, and there are options for them to vary independently (reviewed in Lightner, 2012).

Well-designed networks that control the time, place, and degree of expression of genes, enabling development to occur in a well-integrated fashion, are necessary requirements for life. However, such design obviously extends beyond these phenomena, as it allows for changes in gene expression that can provide useful and potentially adaptive variation. None of this suggests a plausible method for the major restructuring which would be necessary to change one kind of animal into another. In other words, these types of changes show that the beak, for example, was designed, and was not a product of naturalistic changes in a different kind of animal.

Adjusting gene expression

Changes in gene expression happen in our bodies throughout our lives. Various epigenetic changes (e.g., DNA methylation), which do not change the DNA sequence, can be used to alter gene expression levels. Normally, these changes happen in the cells of our bodies, but are not passed on to our children. However, in recent years it has been recognized that epigenetic changes can sometimes affect the germline (eggs and/or sperm) and result in transgenerational inheritance. Interestingly, a study of closely-related finches living in the same area suggests that epigenetic changes may play a part in the adaptive differences between species (Skinner et al., 2014).

There are also times when gene expression can be altered by mutation, a change in the DNA sequence. The mutations can be in the promoter region, upstream from the gene. Sometimes the gene ends up with a new promoter altogether, such as from a retrotransposon that moves into that region. Examples of these are found in the agouti gene, which affects coat color in mammals (Lightner, 2009). It appears that some regions of DNA were intentionally designed to allow genetic changes affecting promoters (Lightner, 2014b).

Adjusting protein structure

It is not just the degree of expression which must be able to change to support life; sometimes the gene product needs to be modified. One of the best examples of this is hemoglobin, the molecule in red blood cells that carries oxygen from the lungs to the tissues. There is no "one size fits all" structure for this molecule, which is why there are different types of hemoglobin produced during different stages of life. There are a number of different hemoglobin genes in any one mammal, for example. A different form of hemoglobin is used during the embryonic, fetal, and post-natal stages of life.

Yet, even in everyday adult life there must be a way to adjust how strongly hemoglobin binds to oxygen. This is regularly done through the production of allosteric factors, which bind to a specific region of the hemoglobin molecule, changing its conformation. Allosteric factors enable hemoglobin to release oxygen at the right time, when it reaches the tissues. The concentration of allosteric factors is well controlled and can be changed as necessary. For example, an increase in an important

allosteric factor was documented in humans within a day of ascending to a very high altitude (reviewed in more detail in Lightner, 2014a).

Yet some conditions, such as very high altitudes, are still a challenge for adaptation via physiologic changes alone. Populations that have lived for generations at very high altitudes often carry genetic changes. In many animals, these mutations affect the amino acids in the hemoglobin molecule. They either directly affect its ability to bind oxygen, or they affect its interaction with the allosteric cofactors. Thus, again we see that genetic changes can be used to extend the types of changes which are possible on a physiologic basis (Lightner, 2014a).

Dismantling networks

There is one other pattern that is commonly seen with genetic mutations. Many mutations obviously degrade the complexity designed into living things. This is not just true of mutations that result in disease. It is also seen in examples of adaptive mutations, ranging from those providing bacterial resistance to antibiotics (Anderson, 2005), to many of the mutations underlying coat-color variation in humans and animals (Lightner, 2008).

For example, most mammals can produce two different types of pigment: a lighter yellow to reddish/brown pigment (pheomelanin), and a darker brown to black pigment (eumelanin). There is a receptor (MC1R) on the surface of pigment cells that acts like a switch. There is one signaling molecule that turns the "switch" ON, so the darker pigment is produced. There is a second signaling molecule which can bind and block the first, resulting in the lighter pigment being produced. In many mammals, the wild-type color pattern is black hair with a short band of yellow just below the tip, giving a brownish color to the animal.

Many of the known mutations in the MC1R cause the "switch" to be permanently ON, resulting in a black animal (e.g., black cattle), or permanently OFF, resulting in a yellow animal (e.g., Golden Retriever). This generally does not harm the animal, and it certainly produces interesting variety. There are times when mutations in this gene, or others which also influence coloration, are clearly adaptive. Yet these are examples of cannibalizing pre-existing complexity, as the MC1R has been completely cut off from both of its signaling molecules.

Conclusion

The patterns of changes seen in known mutations do not support the idea that they can transform one kind of creature into another. They are incapable of building the well-integrated complexity (e.g., sensors, signaling molecules, feedback control) necessary for the right gene to be expressed in the right place at the right time. In fact, numerous adaptive mutations actually degrade this complexity. Adaptive adjustment brought about by mutations required a pre-existing design to allow for such productive changes. Thus, when based on real world observations, mutations do not point to universal common ancestry, but to a God who created creatures according to their kinds, with the ability to vary and adapt.

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Speaking of Science

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> work has **suggested small pterosaurs just couldn't compete with birds** and only the biggest creatures survived.
>
> **However**, this new specimen adds to some previous finds suggesting that **small-bodied pterosaurs did exist during this time** — it's just that their fossils have rarely been found. Pterosaur fossils in general are notoriously poorly preserved because their bones were hollow and more easily damaged. This **bias against pterosaur preservation**, combined with the fact that places like the Dinosaur Park Formation exhibit a documented preservation size bias against small animals, with small dinosaurs and vertebrates rarely being found, means the odds are stacked against a small pterosaur being preserved and then discovered. We've also found very few young, large-bodied pterosaurs for the same reasons.
>
> All this suggests that **pterosaurs may have been more diverse** at the end of the Cretaceous than previously thought, **living side-by-side with their bird contemporaries.**

This adds to the conundrum of what happened to the pterosaurs. If they were not stressed by competition, but lived right alongside flying birds, why did they go extinct with the dinosaurs? They were "strong flyers," Pappas points out. They inhabited much of the globe from Patagonia to Canada. They seemed pretty successful. They came in all sizes. "While some pterosaur species were tiny, others grew to be the size of giraffes," she notes. "These behemoths may have used their limbs to leapfrog into flight, paleontologists say." See also Mindy Waisberger's report in *Live Science*[3] which concurs that the small pterosaur likely flew with the birds.

To be sure, there is some doubt the fossil is a pterosaur instead of a bird, *National Geographic*[4] points out (but *Nature*[5] disagrees, saying the discoverer did due diligence to identify the fossil). But there doesn't seem to be any evolutionary trend in pterosaurs. What they thought was a trend turns out to be a selection effect called taphonomic bias: a difference in preservation potential based on size. This one may not be the last. Nature quotes USC paleontologist Michael Habib: "If there's one, there were probably others. Then we'd need to rethink what we previously thought about survivability of these little ones."

Pterosaurs appear fully formed in the fossil record, already as strong flyers. They survive over 100 million Darwin Years,

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FACADES & FOUNDATIONS

Foundation of Geology

by John K. Reed, PhD

Geology's deep time has fundamentally altered Western thought, replacing biblical history with that of naturalism—a worldview just as "religious" as Christianity. But deep time was not the only facet of the lie. The mislabeling of natural history as a "science" and the resulting conflation of descriptive and historical geology has also undermined the divine authority of the Bible, with the predictable loss of truth and ethics in our day. What is the engine powering this juggernaut of geology?

Rise of uniformitarianism

Geology became an independent, recognizable discipline around the beginning of the 19th century, although many of its descriptive elements were already in place. These were bound together by one very powerful deception. Uniformitarianism was a static view of the past that claimed to be nothing more than an outgrowth of Newtonian uniformity. In fact, Charles Lyell did his best to link the two in the public mind (Laudan, 1983). Lyell even called it his "uniformity principle;" the term "uniformitarianism" was coined by philosopher of science William Whewell in 1831, in his review of Lyell's *Principles of Geology*.

Many historians have claimed that uniformitarianism was the empirical overthrow of the hoary biblical legend of the Flood. Nothing could be further from the truth; the naturalist who coined the term "geology" was a Christian, Jean Andre De Luc (1727–1817). By 1800, he noted an extreme antipathy to the Bible among naturalists. He even went so far as to claim that any mention of Genesis in a scientific study would invite a negative, kneejerk reaction from other naturalists. In other words, the intellectual world of 1800 was not "clinging" to the Flood. Far from it; in defending Noah's Flood, de Luc saw himself as a minority within a minority (Rudwick, 2005).

Though neither the idea of uniformity nor of a deep, static past was original to him, Charles Lyell is most closely associated with uniformitarianism, primarily because of his considerable rhetorical skill in promoting it. So successful were his efforts that Lyellian uniformitarianism remained the self-acknowledged core of geology until the second half of the 20th century. As late as 1968, Challinor called it "the fundamental principle of geology" (Challinor, 1968).

Fall of uniformitarianism

But logical and empirical cracks in the foundation had begun to appear. In 1961, *The Genesis Flood* reasserted the validity of the biblical Flood. In 1963 and 1970, Dutch philosopher Reijer Hooykaas challenged the underlying logic of uniformitarianism, and demonstrated that a wide variety of historical processes and events were subsumed under that label. Geologists began to rethink the question (e.g., Albritton, 1963; 1967). Stephen Jay Gould (1965; 1975; 1984) admitted Hooykaas' logic, and proposed saving uniformitarianism by simply admitting that it had multiple definitions. He later went further (Gould, 1987), pointing out that Lyell's rhetoric was fundamentally deceptive in linking his view of natural history to Newtonian uniformity.

Empirical problems had also become evident—the most famous being the decades-long struggle by J. Harlan Bretz to convince geologists of the Lake Missoula Flood and its catastrophic work in the Pacific Northwest. British geologist Derek Ager published books in 1973 and 1993 that catapulted into prominence a new school in geology called "neocatastrophism," which recognized that catastrophic events were a large factor in forming the geological record, rather than the low-energy monotony of Lyell. In the last decades of the 20th century, it appeared that uniformitarianism was in trouble; Reed (2010) documented the shifting definitions in the *Glossary of Geology* between 1987 and 2005 that reflected a growing popularity of neocatastrophism among geologists. For a short time, it appeared that geologists would cast off the shackles of Lyell's philosophical prison.

Pressure from creationism

Rarely acknowledged by any secular geologist or historian of science is the impact of modern creationism on these trends in geology. Secularists cannot decide whether they should studiously ignore or venomously attack creationism. When they do, their passion gives the lie to their superficial indifference. It is nothing new. Since the 18th century, secular thinkers have presented the biblical Flood as the ultimate "unscientific" bogeyman.

Modern political and social commentators speak of creating a "narrative" and using it as a template to explain events. It is in that sense that we must understand that Lyell and his followers created a "narrative" with uniformitarianism. It was given a façade of empirical evidence and classified as a "science" to limit critical evaluation to a superficial level; controversy rages at the surface, but the underlying naturalism is protected. To the extent that creationists have penetrated to the worldview, they have been successful. But they must also understand that the real debate has never been one of rational dialectic, like two gentlemen debating syllogisms over tea. Instead, it has been a "fight-club" brawl, with rhetorical attacks dominating the conflict. Pseudo-dialectical arguments merely mask the emotive appeals.

Geology can't escape uniformitarianism

Uniformitarianism is thus the heart of geology, but it is a rotten heart. It is not some neutral empirical method, but a biased philosophy of history. If anything, creationists have been too kind in their assessments and attacks on the problem. It is a vulnerable target, as long as its true nature is understood. Part of that true nature is the inseparable link between modern geology and uniformitarianism. Seen in that light, neocatastrophism was a temporary diversion to keep fundamental flaws out of sight.

Predictably, after a short fling with neocatastrophism, geology is swinging back to its roots. Neocatastrophists went too far and began exploring the derivative shortcomings of the geological record (Smith et al., 2015). They followed the logic that if the record oversamples rare, catastrophic events, then Ager (1973; 1993) was right—the rock record is not a representative sample of the past. Their challenge was taken up by Andrew Miall (2015), one of the world's leading sedimentologists. He argued that apparent catastrophism in the rock record was merely a matter of perspective and scale, and then proceeded to the heart of the matter, asserting that: "Uniformitarianism is still the fundamental principal on

which geology is built…" (Miall, 2015, p. 11). His language was not accidental; it intentionally followed Challinor's (1968).

Creationists that were hopeful that neocatastrophism would entice geologists to abandon uniformitarianism for the biblical Flood must recognize that, in the end, narrative trumps all. Miall (2015) reaffirmed the basic narrative; apparent empirical problems will be explained away by perspective and scale. Logical problems have largely vanished into the black hole of postmodernism. There can be no compromise by secularists because uniformitarianism is intrinsic to the worldview of naturalism. Questioning uniformitarianism would ultimately trigger a reassessment of the worldview, and that possibility is remote.

That is all the more reason that the narrative must be exposed as such, and that creationists continue to hammer the logical absurdities of uniformitarianism. Empirical examples will help, but the "narrative" of biblical authority and truth must be reaffirmed. In the next article, we will define and exploit those flaws.

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Speaking of Science
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and then vanish. Does that make evolutionary sense?

1. Pappas, S. (2016, August 30). New pterosaur species with intact skull uncovered in Patagonia. *Live Science*. Retrieved September 16, 2016 from http://www.livescience.com/55933-new-pterosaur-species-with-intact-skull-uncovered.html

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3. Weisberger, M. (2016, August 31). Teensy pterosaur was the size of a house cat. *Live Science*. Retrieved September 16, 2016 from www.livescience.com/55941-cat-size-pterosaur-discovered.html

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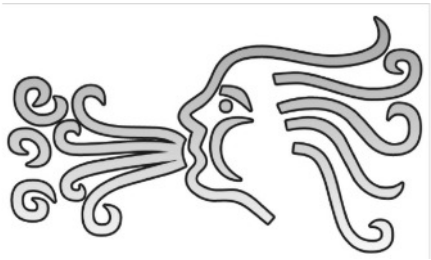
5. Skibba, R. (2016, August 31). Tiny pterosaur claims new perch on reptile family tree. *Nature News*. Retrieved September 16, 2016 from www.nature.com/news/tiny-pterosaur-claims-new-perch-on-reptile-family-tree-1.20507

Can the Same Winds Blow for 42 Million Years?

Uncritical dependence on the Geologic Column forces secular scientists into contorted positions.

These deposits are 25 million years old. Whoops; they are now 42 million years old. That's what *PhysOrg*[1] is saying about deposits of wind-blown sandstone in China called loess (pronounced "lerse"). The word "upend" comes into play here (meaning, to turn previous ideas upside down):



Earlier studies of the Asian climate's history used rocks from the Loess Plateau in northwestern China to show that **dust accumulation began 25 million to 22 million years ago and increased over time, especially over the past 3 million years.** It had been believed that these rocks **reflected the full history** of central Asian deserts, linking them with the rise of the Tibetan Plateau and a **planetwide cooling**.

But Licht led previous research at the University of Arizona **using much older rocks**, dating back more than 40 million years, from northeastern Tibet. **Dust in those rocks confirmed the region already was already [sic] parched** during the Eocene epoch. **This upended previous beliefs** that the region's climate at that time was more subtropical, with [sic] regional wind patterns brought more moisture from the tropics.

Did the scientists actually measure the ages of these deposits? Not exactly; they assumed how old they are, depending on how they are classified in the geologic column by other authors. Interested readers can investigate the assumptions and methods in the paper by Alexis Licht and colleagues in *Nature Communications*.[2]

But when you upend one thing, often other things are also upended. Now, they have to believe dry conditions lasted twice

... continued on p. 10

as long, blowing dust in a westerly direction. "**The origin of the dust hasn't changed for the last 42 million years**," Licht says. What does that mean for climate change?

> "**Understanding the mechanism of those winds** is a **first step to understand** what controls rainfall and drought in this very wide area," Licht said. "It also provides **clues** to how Asian circulation **may change**, since it suggests these westerly winds are a fundamental feature that have [sic] **persisted for far longer than previously believed**."

A lot can happen in a few thousand years, let alone 42 million. The Sahara Desert formed in a lot less time than that. Early peoples populated much of the region before it dried up. Is it plausible to expect westerly winds to keep depositing sand for 42 million years?

> "If we **want to have an idea** of the **Earth's climate** in 100 or 200 years, the **Eocene** is one of the best analogs, because it's the last period when we had **very high atmospheric carbon dioxide**," Licht said.

But he's comparing millions of years to hundreds of years. If "understanding the mechanism" of winds is a "first step to understand" climate change, it's not clear that these scientists understand much at all. They just doubled the age of loess deposits in this part of the world, without even worrying about the implications.

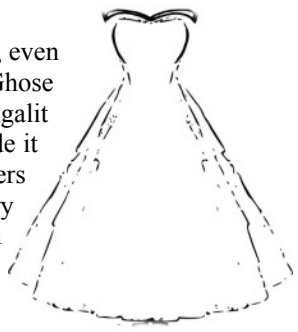
The abstract of the paper states pretty much the same thing: "Our results show that dust sources and near-surface atmospheric circulation have **changed little since at least 42 Myr.** Our findings indicate that the locus of central Asian high pressures and concurrent aridity is a resilient feature only modulated by mountain building, global cooling, and sea retreat." Those last three forces, one would think, should be pretty significant for altering winds and wind-blown deposits, if not stopping them altogether. Yet Licht thinks the winds kept marching along for millions of years, twice as many as previously thought, as if nothing happened.

1. University of Washington. (2016, September 13). Westerly winds have blown across central Asia for at least 42 million years. *PhysOrg*. Retrieved September 16, 2016 from http://phys.org/news/2016-09-westerly-blown-central-asia-million.html
2. Licht, A, G. Dupont-Nivet, A. Pullen, P. Kapp, H.A. Abels, Z. Lai, Z Guo, J. Abell and D. Giesler. 2016. Resilience of the Asian atmospheric circulation shown by Paleogene dust provenance. *Nature Communications* 7:12390.

Wedding Gown Turns Into Pillar of Salt

An art project demonstrated the crystal potential of Dead Sea waters.

This story is not about science per se, even though it was told in *Live Science*.[1] Tia Ghose reports about a new work of art by Sigalit Landau: a crystal wedding dress. He made it by dipping the wedding dress in the waters of the Dead Sea for two months. A gallery on Live Science shows the progression in a series of underwater shots. Within days, salt crystals form on the black gown. At the end of the experiment, the entire dress is pure white, studded with salt crystals.



Ghose explains the science behind the art. The supersaturated waters of the Dead Sea look for places to nucleate crystals. Those tend to grow and merge as salt comes out of solution.

> The initial salt-crystal nucleus still contains a fair amount of water, but as more salt gets deposited and the crystal grows, that water diffuses out of the crystal matrix, according to that article.
>
> As the dress initially caught bits of extra salt, that led to a locally higher concentration of salt, spurring the salt molecules to line up into crystals that eventually grew and transformed this deathly dress into a sparkly saline jewel.

Now stiff and solid, the dress has become a pillar of salt reminiscent of Lot's Wife (Genesis 19:26).

We're not claiming that this is how Lot's wife became a pillar of salt. It is interesting that the area is heavily salt-encrusted, though. Har Sodom, a ridge on the western shore of the Dead Sea, is a mountain of rock salt. However Mrs. Lot suffered her fate, the point of the story in the Bible is not to turn back after fleeing from sin to salvation. Many years later, Jesus used the story as a warning to his followers about the last days: "Remember Lot's wife" (Luke 17:32). Here is the quote in context:

> "Likewise, just as it was in the days of Lot—they were eating and drinking, buying and selling, planting and building, 29 but on the day when Lot went out from Sodom, fire and sulfur rained from heaven and destroyed them all— 30 so will it be on the day when the Son of Man is revealed. 31 On that day, let the one who is on the housetop, with his goods in the house, not come down to take them away, and likewise let the one who is in the field not turn back. 32 Remember Lot's wife. 33 Whoever seeks to preserve his life will lose it, but whoever loses his life will keep it."

1. Ghose, T. (2016, August 26). Dead sea transforms deathly dress into gorgeous salt-encrusted jewel. *LiveScience*. Retrieved September 20, 2016 from www.livescience.com/55903-dead-sea-transforms-dress-to-salt.html

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Quarterly Research Matters

Summaries of Cutting-edge Research from the Creation Research Society Quarterly

Human Genetics

Some have claimed that modern human genetic data contradict the history presented in Genesis. However, Dr. Robert Carter has shown that the opposite is in fact true. Through investigation of patterns in both nuclear and mitochondrial DNA, and a serious look at the biblical historical parameters, it has become evident that multiple lines of evidence are amazingly consistent with biblical history.

In a co-authored paper in the "Special Issue: Genetics" of the *Creation Research Society Quarterly* (*CRSQ*), Dr. Carter summarizes evidence consistent with a literal Adam and Eve, a global Flood that included three daughters-in-law, a Babel dispersion, and a biblical time frame of thousands (not millions) of years. With the recent explosion of human genetic data, this is an opportune time for creationists to conduct further research clarifying issues that relate to the biblical creation model.

Carter, R.W. and J.K. Lightner. 2016. Human genetic data affirms biblical history on many levels and is an excellent resource for Creation-based research. *CRSQ* 52:249–255.

Genesis indicates that humans were created separately from all other animals, and in the image of God (Genesis 1:27–28). We certainly see many unique traits in humans, not only physically, but also in language and culture. One might suspect that we would see differences when we look at humans genetically, and that is exactly what scientists have discovered.

Recently the Creation Research Society commissioned Dr. Jeff Tomkins of ICR to do an in-depth investigation of genomic regions that are distinctively different in humans. He looks at how evolutionists have tried to make the evidence fit into their framework, and discusses how it fits much better within a biblical understanding of history.

Tomkins, J.P. 2016. Human uniqueness and accelerated storytelling: How conserved regulatory regions in the genome challenge evolution. *CRSQ* 52:256-264.

High Tech Cells

Evolutionists once promoted their worldview by referring to a "simple" cell. However, it was their understanding that was simplistic, not the cell. Scientific research has instead revealed an extraordinary amount of complexity and responsiveness which is inherent in living things.

In the first of an invited, two-part series, Dr. Royal Truman expounds on how living cells constantly employ Boolean logic operations using multiple independent codes. In this look at *Cells as Information Processors* he examines in detail formal software principles and how they correspond to known functions in the cell, clearly pointing to the fact that cells have an astoundingly intelligent Designer!

Truman, R. 2016. Cells as information processors, Part I: Formal software principles. *CRSQ* 52:275–308.

Continued creation research is made possible by the generous gifts (time, money and prayers) of our many supporters. Thanks to all who have contributed!

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eKINDS

Examination of Kinds In Natural Diversification and Speciation

The Creation Research Society is pleased to announce a new research initiative—eKINDS.

How did we get the wide variety of today's species from a small number of animals preserved on the Ark? How do new species form, and how does this fit within biblical creation? Can we trace the spread of the created kinds from the Ark to where they live today? These and similar questions will be addressed by the *eKINDS* initiative.

The Society is seeking donors willing to help fund this initiative. For more information on how you can help, please contact the Creation Research Society at (928) 636-1153 or crsvarc@crsvarc.com.

Creation Research Society
6801 N. Highway 89
Chino Valley, AZ 86323-9186
USA
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All by Design

by Jonathan C. O'Quinn, D.P.M., M.S.

Now That's a Mouthful

In the context of the creationist's world view, based upon the Bible, all creatures were created according to kinds by an intelligent Designer. No matter where we look throughout nature, we can find evidence to support this idea.

Certain whales, known as rorqual whales, including the humpback, fin, and blue whales, capture their prey by lunge-feeding, which involves opening their mouths nearly 90 degrees and swimming, with amazing speed, into areas of prey-laden water. They then close their mouths, expel the water, and strain prey such as krill through their sheets of baleen.

Humpback Whale (*Megaptera novaeangliae*) skeleton, in museum at King's Point, Newfoundland and Labrador, Canada. The massive lower mandibles can be clearly seen.

The potential problem is that this feeding pattern creates enormous drag on the mandibles, or jaw bones. The bone structure of rorqual mandibles is now being studied (Field, et al., 2010). Researchers have found that the mandibles behave mechanically like cantilever beams, fixed at one end. When a uniform force is applied to such a beam, like the bending force from the water on the mandibles, the stress placed upon the beam increases from the unfixed to the fixed end, like the force upon a ruler clamped at one end. As young rorqual whales grow, the forces exerted upon their mandibles during feeding also increase.

Here we see the beauty of life's design. Bones have the innate ability to produce increased mineral content, thus providing more rigidity, based upon the stresses applied to them.

What do we find? Both eloquent and simple, the thickness of the more densely mineralized, outer "cortical" bone is greater as one looks from the rostral end of the mandible to the fixed attachment at the temporomandibular joint (TMJ) pad.

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Field, D.J., R. Campbell-Malone, J.A. Goldbogen, and R.E. Shadwick. 2010. Quantitative computed tomography of humpback whale (*Megaptera novaeangliae*) mandibles: Mechanical implications for rorqual lunge-feeding. *Anat. Rec.* 293:1240–1247. Retrieved September 28, 2016 from http://onlinelibrary.wiley.com/doi/10.1002/ar.21165/full

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